ZETOR

PROXIMA

Model 2012

70
80
90
100

2/2012

Operator's manual

ZETOR

You are presented with a user manual amendment which covers the operation and maintenance of a new model of the **PROXIMA** series 2012.
You are kindly asked to become familiar with the contents of this manual, even though you may be experienced in operating other tractors.
The manual contains new information and overview of how the tractor may be used in different kinds of work.
If the operating, maintenance and safety rules are observed, your new tractor will become a reliable companion for a long time.
We wish you thousands of successful working hours.

ZETOR
Brno

Information about technical specifications, design, equipment, material, and external appearance is valid in the time of printing this operator's manual. Manufacturer reserves all rights for changes.

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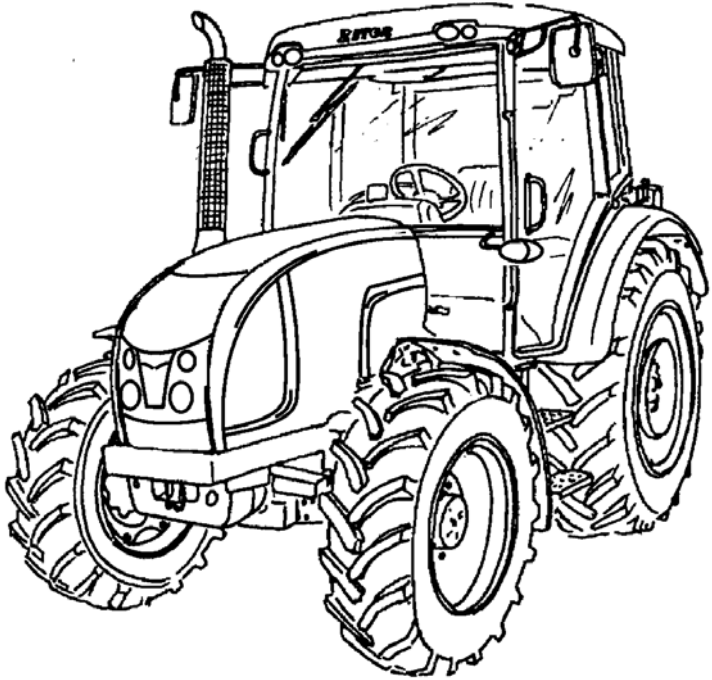
The operator's manual contains description, operation and maintenance of standard and optional tractor equipment, which can the tractor equipped with. The option that is not a part of standard tractor equipment cannot be a subject of claim in case it is not assembled in the producer's factory. Service cheque book is not a part of operator's manual. This is a separate booklet that is passed to you at purchasing of your new tractor.

TRACTORS PROXIMA

TRACTORS PROXIMA:

Tractor type	Engine output (kW)
Z70	45
Z80	53
Z90	60
Z100	66



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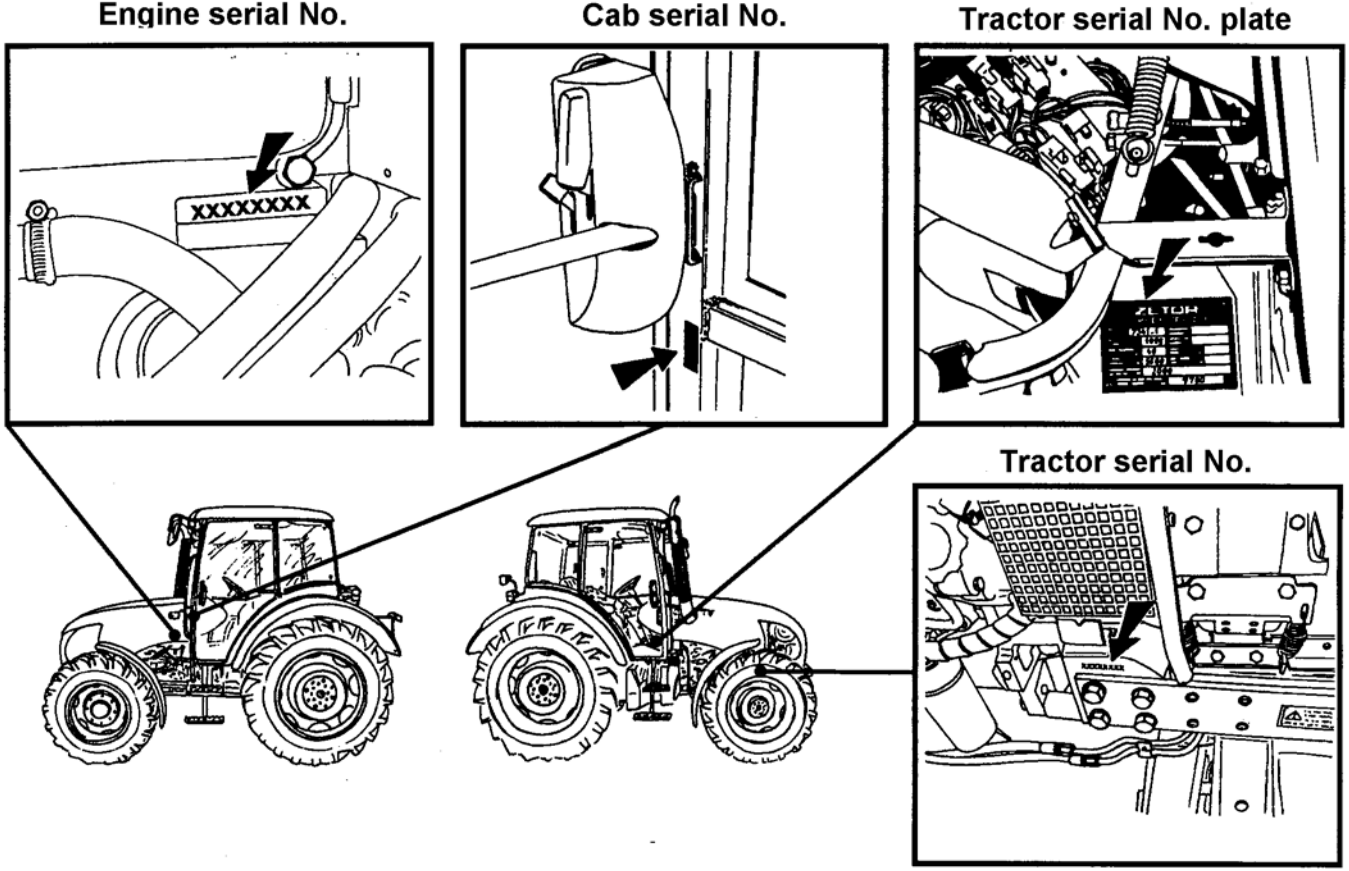
LOCATION OF SERIAL NUMBERS - TRACTOR WITH A CABIN



C10a

LOCATION OF SERIAL NUMBERS

When you contact your authorized service dealer or the factory for order of service parts, always give the model and serial numbers of your tractor. For your convenience, write those numbers in the frames below.

Tractor model	**Tractor serial number**	**Engine serial number**

Zetor Proxima Z 70
Zetor Proxima Z 80
Zetor Proxima Z 90
Zetor Proxima Z 100

The “left“, “right“, “front“ and “back“ side of the tractor is determined by travelling direction.

Manufacturer reserves rights for changes of design and option, that improves the tractor features.

G3

SAFETY INSTRUCTIONS FOR USERS

Keep extreme attention when reading parts of operator's manual that are marked by these symbols.

You will find this symbol at all important warnings identifying the safety of tractor operation.
Keep these regulations and be extremely careful in these cases!
Inform your co-operators and other users about these messages.

Study carefully chapters marked by this symbol before starting with operating, servicing or adjusting the tractor.

You will find this symbol whenever important information on operation, adjustment and repairs of starter motor.
Keep these regulations and be extremely careful in these cases!

Chapters of this operator's manual marked by this symbol have relation to environment protection.

* *This symbol indicates the tractor accessories mounted by the manufacturer on the customer's request.*

GENERAL SAFETY REGULATIONS

1.Only a trained operator having a valid driving license and being properly acquainted with operating and safety rules can operate the tractor.
2.Except of safety warnings mentioned in this operator's manual you must respect all general safety and traffic regulations of country where the tractor works.

PROPER CLOTHING

3.Do not wear loose clothing and free flying long hair.
4.Use suitable (prescribed) personal protection means (working boots, gloves etc.) at work.

STARTING ENGINE

5.Starting the engine when driving tractor downhill is forbidden.
6.Starting tractor by means of towing with another tractor or vehicle is allowed only when the pull bar is used.
7.Start the tractor from driver's seat only with the shifting lever in neutral position and with the clutch pedal depressed-down. Life hazard when starting by means of starter connector short circuit.
8.The key of the key switch must be in position "I".
9.When preheating engine by electrical heater, plug the heater first and connect the cable into electricity after. After finishing of preheating disconnect the cable from electricity first.

OPERATION

10. Hoses of hydrostatic steering, brakes and fuel system must be checked and replaced in case of any damage indication. The damage indication is for example: cracks on hose surface, loosening of hose fittings (it is possible to verify it easy by pulling of hose from fitting) and mechanical damage of hose. It is necessary to replace the hoses with marked service life immediately after expiration of the marked service life.
11. Brake pedals must be latched at transportation with trailers and implements on the road.
12. Brakes and steering must be permanently in perfect condition.
13. Driving downhill without shifted gear is forbidden!
14. Pay special attention when driving on hilly, muddy, sandy, icy and uneven terrain.
15. Do not exceed the max. specified inclination angle that is max. 11°. Respectively 12° for tractors with front driving axle.
16. Do not exceed the max. total weight of trailers mentioned in the tractor serial number plate or at the rear fender.
17. Do not use the differential lock when driving into the turning.

SAFETY INSTRUCTIONS FOR USERS

18. It is forbidden to get out or into the driving tractor.

19. Reduce the travel speed to 15 $km.h^{-1}$ when transporting agricultural implements hitched in the front three point hitch.

20. The front axle load must not be lower than 18 to 20 % of immediate total tractor set weight when transporting agricultural implements hitched in rear hitches.

21. Reduced gears 1R, 2R, 3R must not be used in case that tractors Proxima 75, 85, 95 are implemented with machines and implements having a big traction resistance when engine speed is dropping and the tendency of engine is to be stopped.

22. Reduced gears 1R, 2R must not be used in case that tractors Proxima 65 are implemented with such machines.

TRANSPORTATION OF PERSONS, OPERATION

23. Number of persons transported by tractor must not exceed number mentioned in tractor technical license.

24. Persons, that are not authorized to work with attached implement, must not stand between tractor and hitched implement (machine).

25. Make sure neither any person nor any obstacle allows driving before starting tractor move.

26. Max. allowed travel speed of tractor and trailer equipped with air trailer brakes is 30 $km.h^{-1}$. Only tractor models equipped with braked front driving axle can travel by max. allowed speed (tractor and trailer or semi-trailer) 40 $km.h^{-1}$.

TRACTOR RESCUE AND PUSHING

27. To recover the stack tractor use a tow bar or cable.

Never use chains! Rupture of the chains represents a mortal danger!

28. It is life dangerous to stand near the rope when recovering the tractor.

29. Front hook assembled on front tractor frame serves for pulling of the tractor alone only, i.e. without trailer or another implement.

30. Never use free wooden blocks or bars put between tractor and pushed subject when pushing other vehicles (trailers, implements etc.)

LEAVING OF TRACTOR

31. Do not park the tractor with attached implement in lifted position.

32. Do not forget to brake the tractor with parking brake (shift the gear), remove the key from key switch and lock the cab before leaving the tractor.

33. At tractor equipped with reversor gear, shift the reversor lever into forward drive position.

34. Usually use the left-hand side tractor door when leaving the tractor. Look round whether any vehicle is coming, that could jeopardize your safety when leaving the tractor.

35. Use steps and handles when leaving the tractor. When leaving the tractor by the right-hand side door pay attention being in space of shifting lever and hand throttle control.

36. Brake the tractor with parking brake before leaving tractor with running engine.

AT STOPPED ENGINE ONLY

37. All activities connected with refuelling, cleaning, lubricating and adjusting tractor or attached implement can be done at stopped engine and stopped moving tractor parts only, except of brake, hydraulics and charging function check.

38. It is always necessary to stop the engine before removing of hood. The engine can run in a closed building or room only when sufficient ventilation works. Exhaust gases are health dangerous.

PRINCIPLES OF FIRE PREVENTION

39. Refuel the tractor preferentially after finishing work and at stopped engine.

40. Do not refuel the fuel tank up to the top in summer season. Wipe the fuel immediately when spilled.
41. Do not refuel the tractor nearby open flame and do not smoke.
42. Do not smoke and do not use open flame when inspecting the battery electrolyte level.
43. Keep properly the fire prevention regulations in areas with increased fire hazard (hay-lofts, straw-stocks etc.).
44. If the tractor is equipped with a fire extinguisher, keep it always ready for use.

HEALTH AND ENVIRONMENT PROTECTION

45. At the customer's request the tractors may be equipped with special carbon filters of air drawn into the cabin. Without the filters they are not suitable for work with aerosol or other harmful substances.
46. Tractors are not furnished with special filters of air that is sucked to the cab. Therefore the tractors are not intended for work with aerosols and other substances harmful to health. Kerosene, diesel fuel, mineral oils and other products from crude oil used for operation and maintenance of tractor may cause an injury in case of direct contact with skin and it can irritate mucous membranes, eyes, digestive or respiratory organs. Some of them can cause poisoning when swallowed.
47. The operators who enter in contact with oil products are obliged to keep safety and hygienic instructions consistently, make use of appropriate protecting means, and work in well-ventilated rooms.

MANIPULATION WITH CRUDE-OIL PRODUCTS

48. After finishing work, wash yourself with a non-irritant agent and treat your hands with a suitable skin ointment or cream.
49. When connecting and disconnecting the quick couplers of hydraulic circuit, remove – with a piece of any cloth – the residual oil, which remains in the coupler socket or possibly at the plug.

WASTE DISPOSAL

50. With disposal of the tractor or its parts (including its operational fluids) after termination of their service life it is necessary to follow the applicable laws and executing notices to the laws of the country in which the tractor is used. Based on the act on waste, when selling the tractor, the final dealer of the tractor is liable to inform the consumer about the way of back taking of some used parts of the tractor. These include oils and other operational fluids, batteries and tyres. Back taking of these used products shall be carried out without any demands for any payment from the consumer for this back taking.

PREVENTIVE DAILY SERVICE

51. Do this service every day or at least every 8 to 10 hours.

SAFETY CAB

52. If corrosion, crash or other accident cause damage of the frame of safety cab it is necessary to replace the cab.

AIR-CONDITIONING

53. In any case it is not allowed to disassemble, turn or manipulate in another way the screw joints of the air-conditioning system, because sudden leak of the coolant and quick local cooling may occur. Contact or freezing of components in hands may result in serious injury of some tissues.
54. The air-conditioning system is equipped with quick couplers, which allow separation of the cab from the tractor body if necessary, without any leak of the coolant. Entrust the interventions into the air conditioning system to the service specialists.

ELECTRICAL INSTALLATION

55. *No additional interventions into the tractor electrical equipment (connection of other electrical appliances) are allowed because of its possible overloading!*

56. The values of electrical installation are:

Nominal voltage	12 V =
Ground minus pole	(-) pole

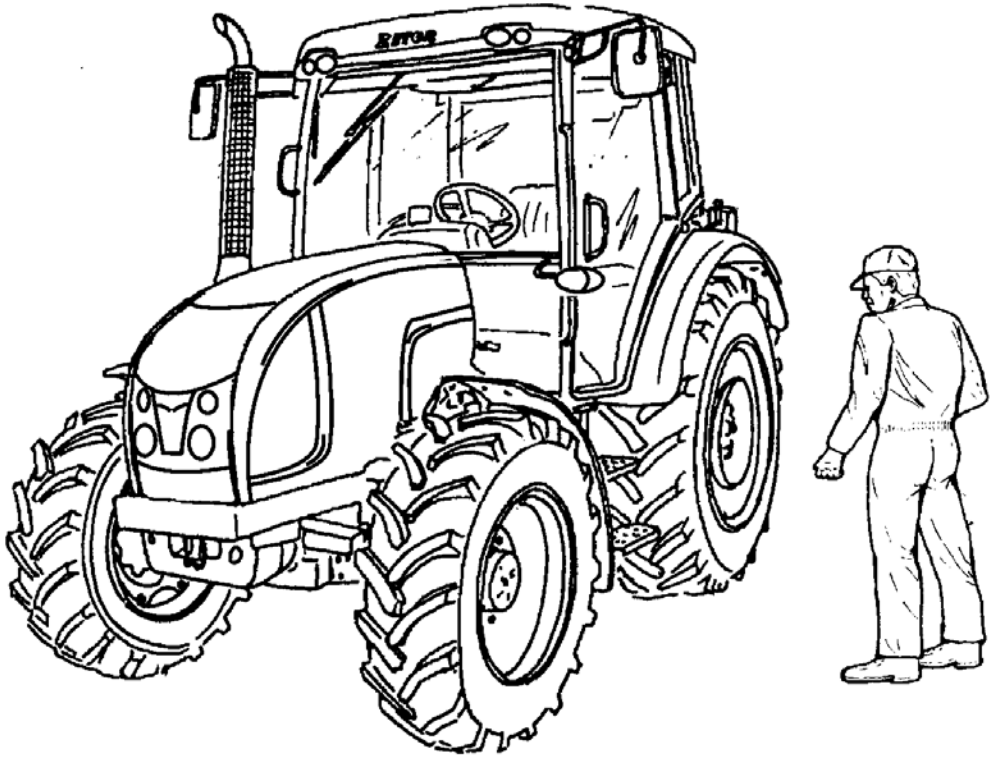
Using of starting trucks or starting aid devices with different voltage or polarity causes serious failures of tractor.

57. It is necessary to be careful when manipulating with the battery and to avoid short circuits. Turn off the battery switch at tractors equipped with this switch when manipulating with the battery.

58. Tractors must not be run with disconnected battery, because serious failure of tractor could occur.

PREVENTIVE DAILY SERVICE

Do this service every day or at least after every 8 to 10 operating hours.



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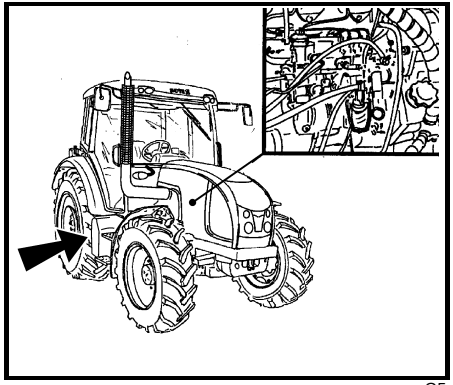
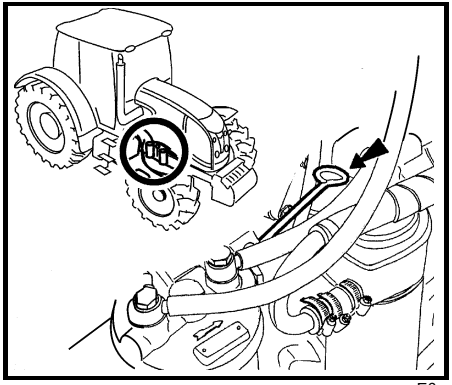


G5

TIGHTNESS OF THE FUEL SYSTEM

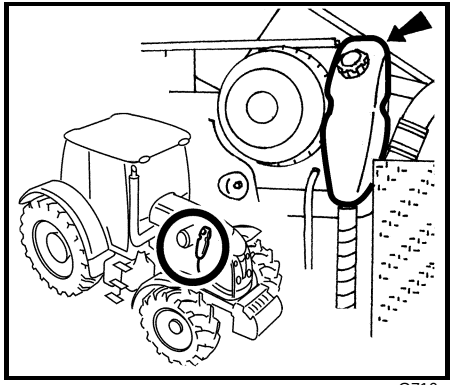
Check tightness of the fuel system, including the fuel tank discharge plug. Eliminate immediately all leakages.



E6g

LEVEL OF OIL IN THE ENGINE

The oil gauge rod can be found on the right side of the engine. After screwing and pulling out the rod, check level of oil in the engine and tightness of connections of the engine lubrication system. Keep level of oil between the gauge rod marks.

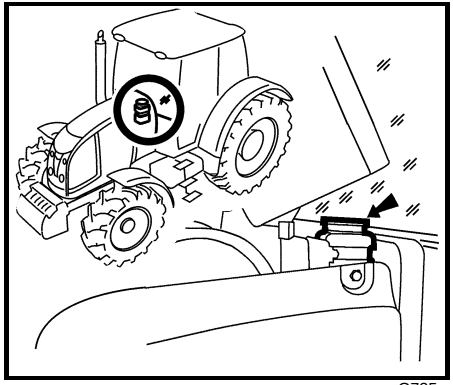


G716c

COOLING SYSTEM

Check tightness of connections of the engine cooling system and level of cooling fluid in the expansion tank.
The expansion tank is accessible after opening of the front bonnet. Refill the missing volume up to the upper gauge mark MAX. The minimum permissible level of cooling fluid is at the gauge mark MIN.

Release the overpressure lid after the cooling fluid has cooled down. Risk of scalding!



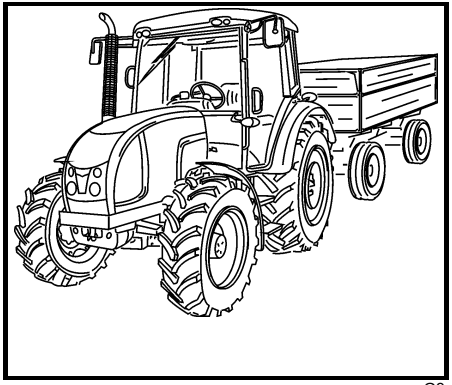
G735a

FLUID BRAKES

Check tightness of fluid brakes, fluid control of the clutch and level of brake fluid in the expansion tank. The tank can be found on the left side of the tractor, in front of the cabin and is accessible after lifting of the front bonnet.

Keep level of the brake fluid within 3/4 (max.) and 1/2 (min.) of the tank volume.

When manipulating with the brake fluid, keep strictly cleanness. Check level of brake fluid every day before driving..



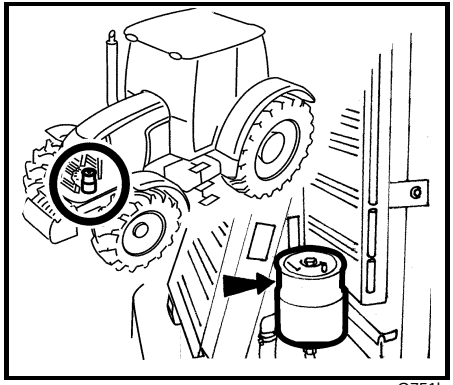
G9

AIR BRAKES OF THE TRAILER

Check tightness of the air system of the brakes and effectiveness of brakes of the tractor with a trailer.

HYDRAULIC BRAKES OF THE TRAILER

Check tightness of hydraulic brakes of the trailer and effectiveness of brakes of the tractor with a trailer.



G751b

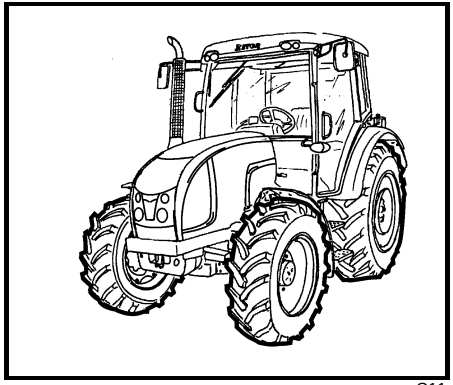
HYDROSTATIC STEERING

Using the oil gauge rod check level of oil in the hydrostatic steering tank that can be found on the left side of the tractor. It is accessible after lifting of the front bonnet.

If necessary, refill oil up to the oil gauge rod mark that defines its correct volume.

Check condition of all hoses of the hydraulic steering circuit for any damage and oil leakage.

Check tightening of bolts and nuts of steering rods and levers.

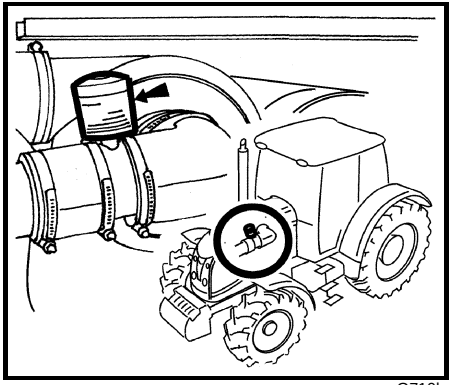


G11

TYRES AND WHEELS

Check air pressure in the front and rear tyres. According to nature of work, adjust correct pressure. Check and tighten if necessary all screws of the front and read wheels (connection rim/disk and disk/wheel shaft).

Never drive with loose wheel screws!

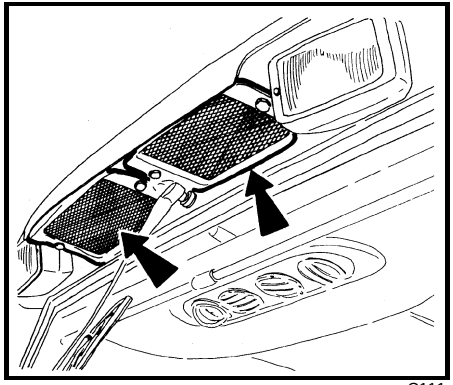


G710b

AIR CLEANER

Maintenance of the air cleaner shall be carried out after indication of the indicator of clogging.

The indicator is accessible after lifting of the bonnet. It is located close to the inlet pipe elbow.



C111

FILTRATION OF THE CAB

Check and clean if necessary air filters for ventilation of the cab in the front overhang of the roof.

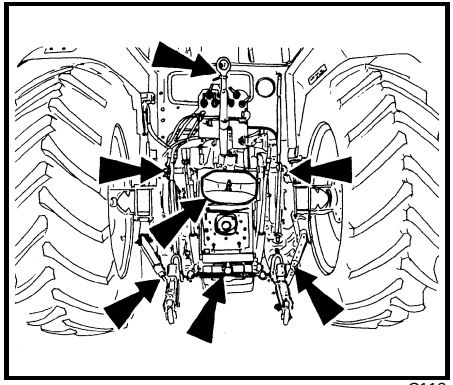
Replacement of filters depends on amount of dust in the working environment.

Partial regeneration can be carried out by dusting of blowing with compressed air.

Carry out cleaning or replacement of filter cartridges after dismounting of cover grilles in the roof overhang.

At the customer's request we supply filters with active carbon.

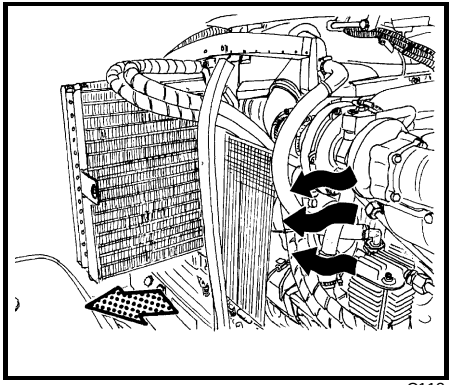
Don't clean the filter; don't flush it with compressed air.



C112

SUSPENSION EQUIPMENT

Check condition of suspension and connection equipment including the trailer.



C113

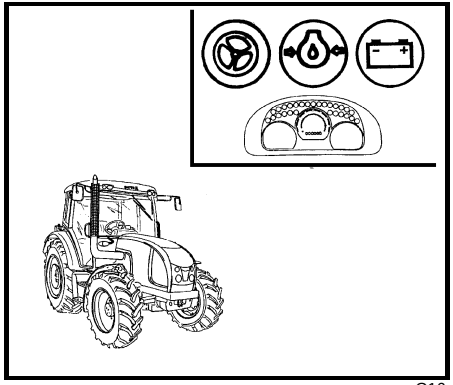
AFTER WORK WITH FRONT-CARRIED MACHINESI

After work with front-carried machines:

– Check tightness of connections of the external hydraulic circuit for control of the front three-point suspension.

Clogging of radiators:

1. Tilt up the bonnet.
2. Release and slide out the A/C condenser to the left side of the tractor.
3. Clean the front walls of the engine radiator (A/C condenser) using compressed air (blow air in direction from the engine).
4. Remove remaining dirt from the space under the bonnet (to prevent its re-sucking).



G16

SHORT FUNCTIONAL TEST

After starting the engine check whether the indicator of hydrostatic steering fault, indicator of engine lubrication and indicator of recharging are off.

Check function and tightness of hydraulic steering circuits.

ACQUAINTANCE WITH TRACTOR

Tractor user must be properly acquainted with recommended operating and safety rules for safe tractor operation in advance. It is too late to do it within operation!

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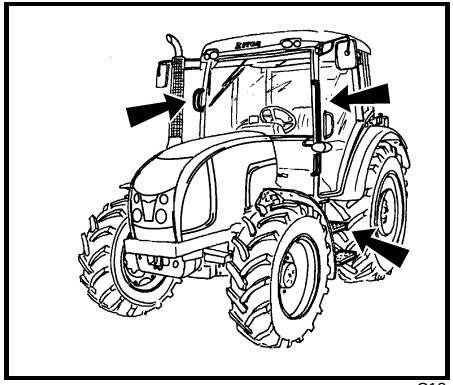


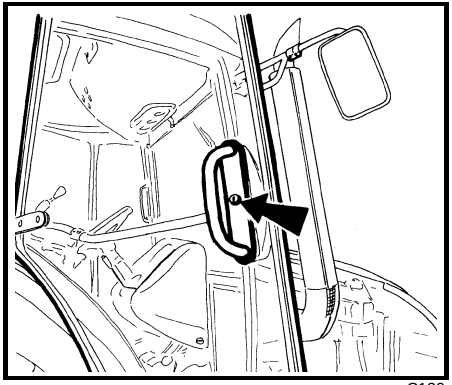
C12

SAFETY CAB

Generally use left side of the tractor for entering and leaving the cab.

Use steps for entering and leaving the cab and use handles.

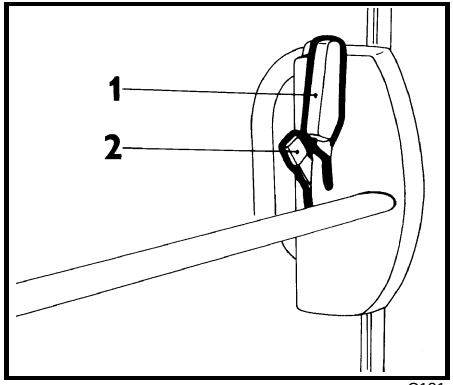
Take high care in the space of the gear shifting lever and hand throttle control lever.



C120

DOOR OPENING FROM OUTSIDE

Cab doors can be locked from outside. After unlocking depress the lock button and by pulling the handle open the door.



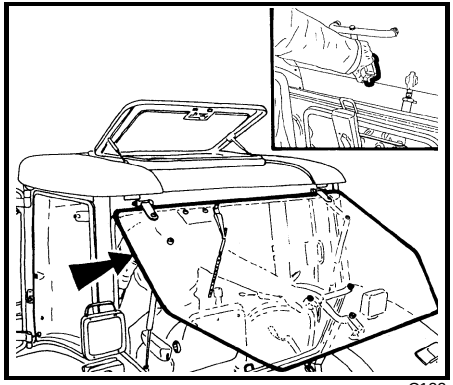
C121

DOOR OPENING FROM INSIDE

1. Lever for door opening from inside
2. Lever for lock opening from inside

Door is kept in fully opened position with a gas strut.

Driving with opened door is not recommended because the door might be damaged.

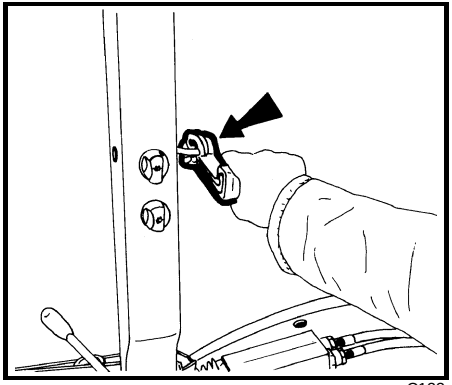


C122

REAR WINDOW

Rear window is equipped with handle and is kept in the open position by gas struts.

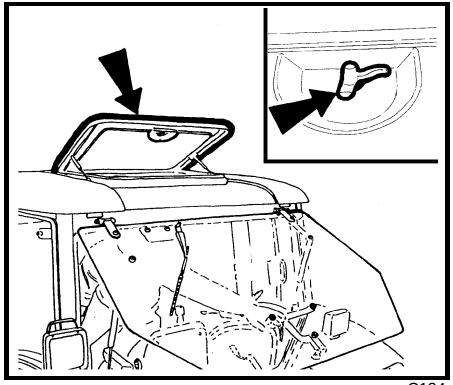
We recommend to latch the window in closed position when driving on uneven terrain - danger of window cracking. Before starting work with machines implemented in the rear three point hitch be sure that the interference between hitched implement and opened rear window is avoided at the maximum lifting of the rear three point hitch. In case of interference we recommend to work with closed window.



C123

SIDE WINDOW

A plastic latch locks the side window in half-opened position.

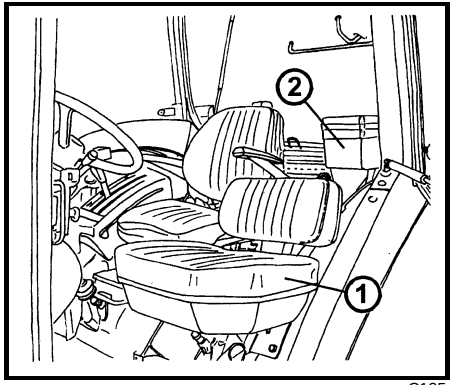


C124

*** TILTABLE ROOF LID**

The tiltable roof lid can be opened by turning the arresting lever and by half-opening.

Tractor total height is increased when opened lid. Therefore always close the lid when passing through low profiles or when parking there.



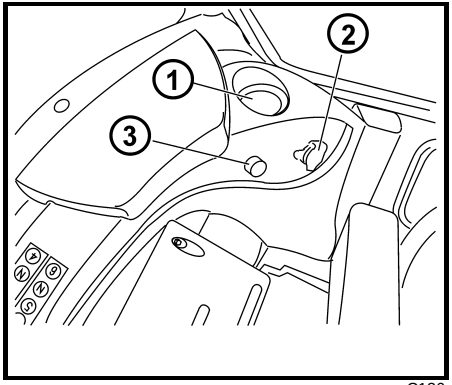
C125

∗PASSENGER'S SEAT

Passenger's seat (1) is tiltable and is situated on the left cab fender.
For facilitating the access to the driver's seat, it is possible to tilt the passenger's seat upwards.

TOOLBOX

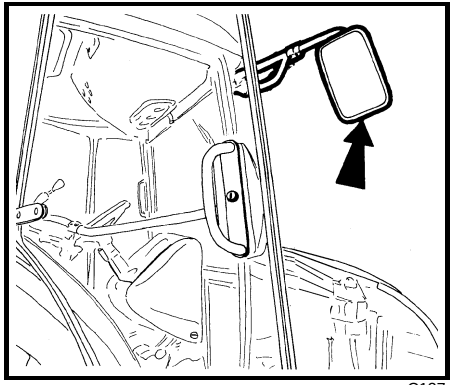
The toolbox (2) is situated at the left side of the driver's seat.



C126

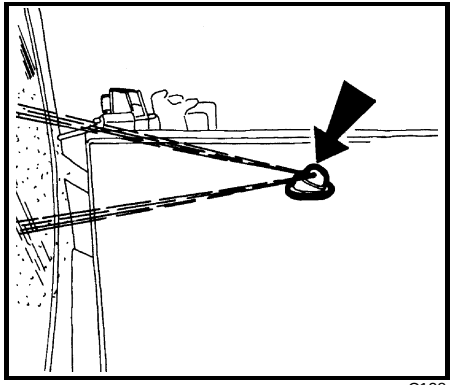
RIGHT REAR PANEL

The right rear panel includes a storage place for a PET bottle (1), socket 12V (2) and cigarette lighter (3).


C127

REARVIEW MIRRORS

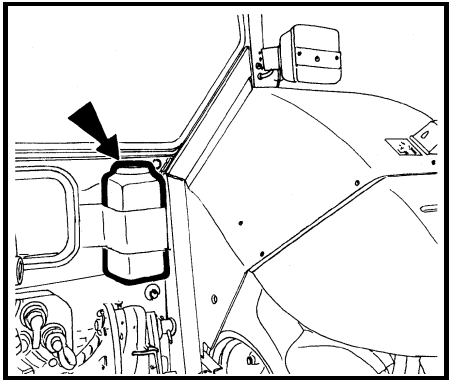
Adjust rearview mirrors before driving or starting the job to be able to see the entire road or the working field.



C128

WASHER NOZZLE

The washer nozzle is situated in the upper part of the hood and is adjustable by needle or steel wire of maximum diameter 0,8 mm.



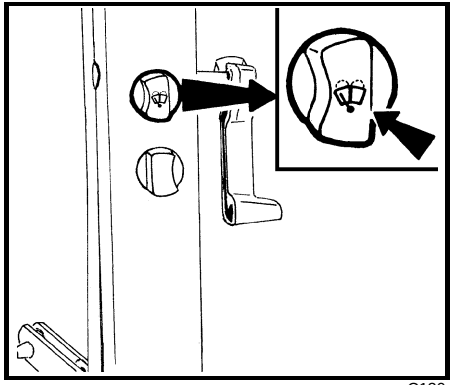
E111

WASHER TANK

The washer tank is located inside the cab, on the right hand side of rear wall behind the driver's seat. The washer tank capacity is 2,5 litres.

In summer the reservoir should be filled with distilled water or mixture for washers.

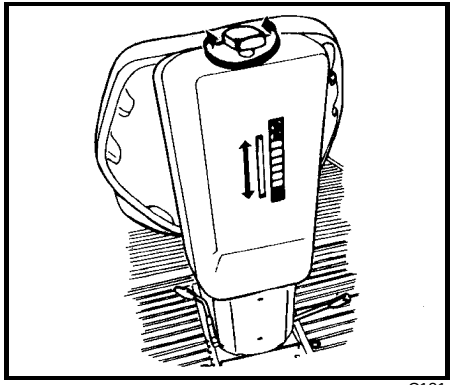
Antifreeze mixture for washers must be used in winter season for filling the washer tank.



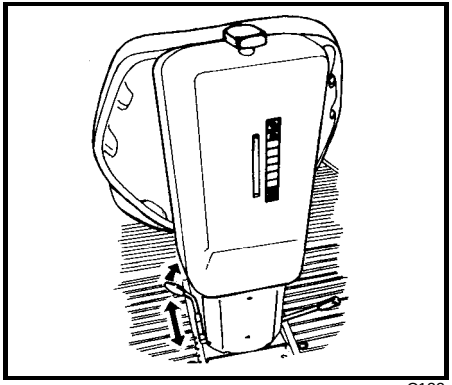
C130

WASHER CONTROL

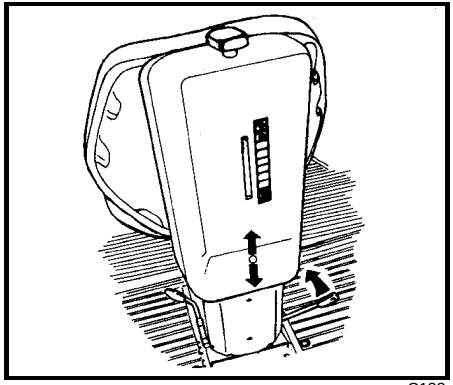
The windshield washer sprays after pressing the switch of front two-speed wiper. This switch is located on the right cab pillar. Maximum time of uninterrupted operation of washer pump is 20 s.



C131



C132



C133

DRIVER'S SEAT Mars Svratka

ADJUSTMENT FOR DRIVER'S WEIGHT

The suspended seat is adjustable for driver's weight from 50 up to 120 kg. Adjustment is done by turning of square knob. Weight indicator is located in the slot of rear seat cover. Spring stroke is 120 mm.

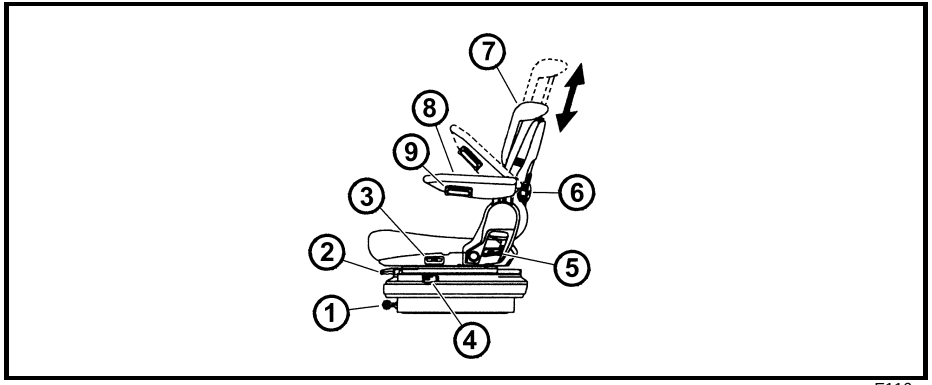
Do not adjust the seat when driving!
Danger of accident!

LONGITUDINAL ADJUSTMENT

The seat can be longitudinally adjusted within range ± 75 mm (11 positions) after unlocking of left hand side lever.

VERTICAL ADJUSTMENT

Vertical seat adjustment is done by the right hand side lever; from the middle position to two marginal positions within range ± 30 mm.



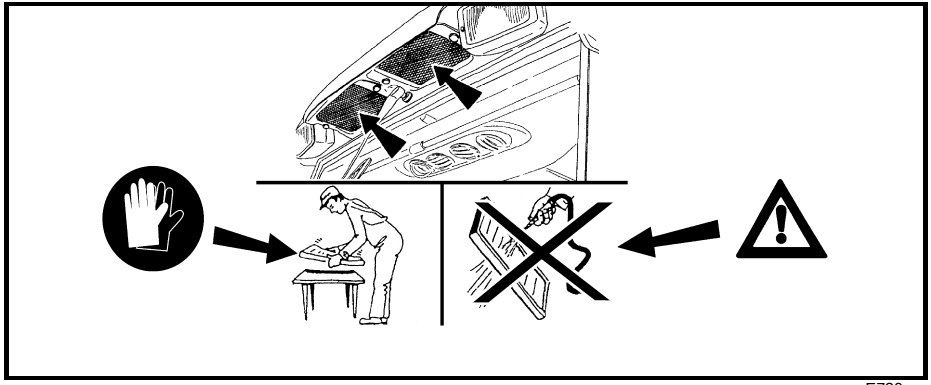
E116

DRIVER'S SEAT GRAMMER MAXIMO

1 - Lever for adjusting of cushioning of the seat according weight of the driver (adjustment by turning in direction as shown on the pictogram on the seat bellow).
2 - Lever of longitudinal adjustment of the seat (located on the right side of the seat).
3 - Turning of the seat (can be turned by 20° to both sides).
4 - Control of adjustment of absorption of vibrations of the seat (tilting of the controller forwards adjusts a floating position of the seat).
5 - Control of adjustment of the seat inclination.
6 - Control of adjustment of the back shape.
7 - Height-adjustable backrest (pulling or pushing in direction of the arrow adjusts the backrest within range 170mm).
8 - Tiltable armrest.
9 - Control of adjustment of the armrest (turning of the controller adjusts height of the armrest).

DRIVER'S SEAT GRAMMER S

Here only items 1, 2 and 5 are used.



E730a

***AIR FILTER WITH ACTIVE CARBON**

Filters with active carbon are installed instead of the standard dust filter and replacement is carried out in the same way as in the common filters. The filter should be located with the white surface on the grid. Installation directions are stated in the chapter “Instructions for Maintenance”.

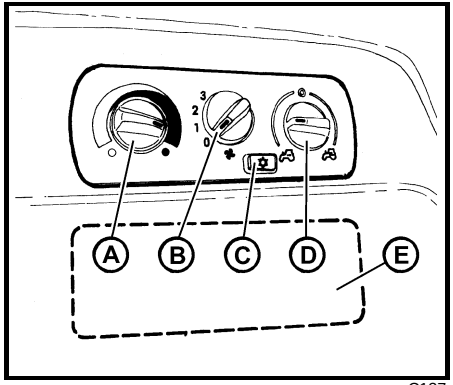
The filter is used only when spraying pesticides, after the work the paper filter should be reinstalled, because the carbon filter would be choked with dust after a short period of time. Upon work the re-circulation controller should be in the position “air is drawn into from the outside”.

The fan controller should be in the position “fan maximum work”.

- *WARNING: The filter does not provide full protection against toxic substances.*
- *When handling the filter, wear protective gloves.*
- *Don’t clean the filter; don’t flush it with compressed air.*

DANGER: The filter with active carbon should be replaced after every 200 hours or 36 months (manufacture date is stated on the filter). If you can smell pesticides in the cabin, replace the filter immediately and check the cabin sealing. Used filters should be disposed in special disposal centres.

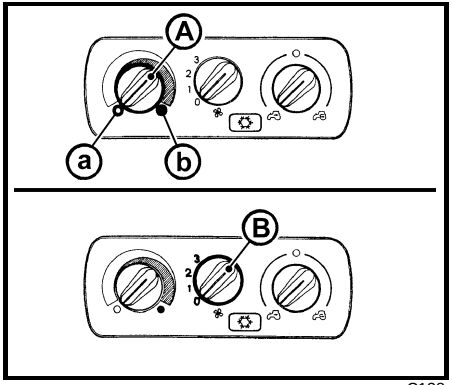
When spraying pesticides and using the heating filter with active carbon, the re-circulation controller should be in position “air is drawn into from the outside” and the fan controller should be in the position “fan maximum work” to create overpressure in the cabin.



C137

CONTROL PANEL OF HEATING, ∗AIR-CONDITIONING, ∗RADIO

A - control of heating valve
B - control of blower
C - switch of air-conditioning
D - control of air circulation in cab
E - space for additional radio installation



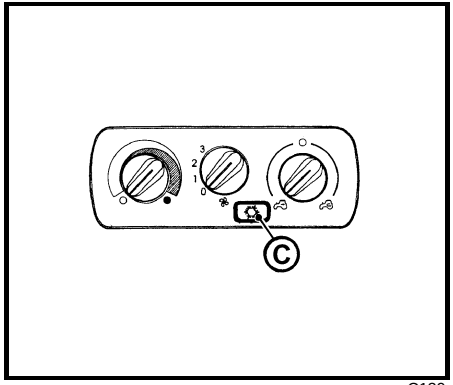
C138

CONTROL OF HEATING VALVE (A)

a - heating valve closed
b - heating valve open

CONTROL OF BLOWER (B)

0 - blower switched-off
1 - blower low speed
2 - blower middle speed
3 - blower maximum speed



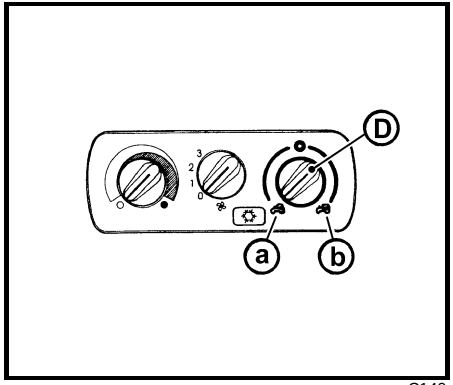
C139

∗AIR-CONDITIONING SWITCH (C)

Switch-in and switch-off of the air-conditioning system is made by switch with symbol of flake (C).

By depression of the switch, the air-conditioning system is put into operation (symbol of flake lights).

By repeated depression of the switch, the air-conditioning system is put out of operation (symbol of flake does not light).



C140

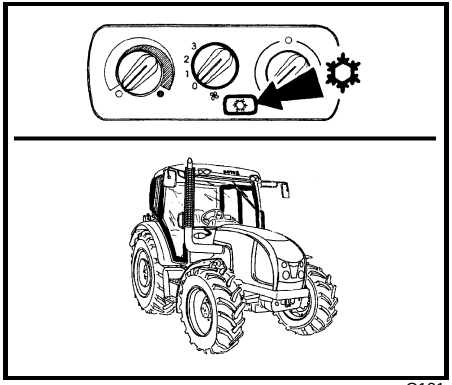
CONTROL OF AIR CIRCULATION IN CAB (D)

a - surrounding (outer) air is sucked through filters into the cab - air suction from the cab is closed.

b - air is sucked from the cab space and again blown into the cab (inner air re-circulation for fast temperature adaptation in cab).

In this position the air inlet from outside of the cab is fully closed and in the cab no overpressure, which prevents penetration of non-filtered air into the cab, is created!

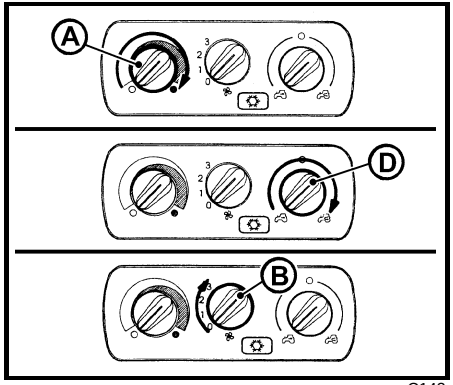
Use this position of the control only for urgently necessary time!



G121

RIGHT FUNCTION OF HEATING AND AIR-CONDITIONING SYSTEM

It is necessary to create overpressure in the cab for proper function of heating or air-conditioning. Therefore we recommend to shut all windows, doors and cab roof cover.



C142

FAST HEATING THE CAB SPACE

Process in the following way:

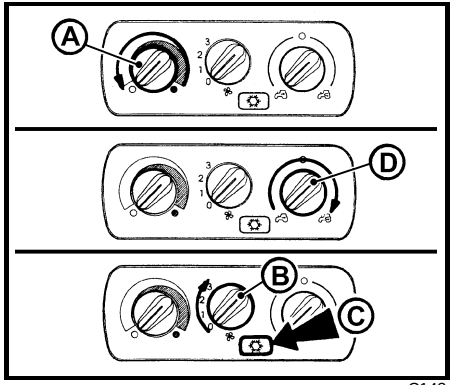
1 - Turn the control of the heating valve (A) to the right-hand position (heating valve fully open).

2 - Set the control of air circulation in the cab (D) to the position of inner re-circulation.

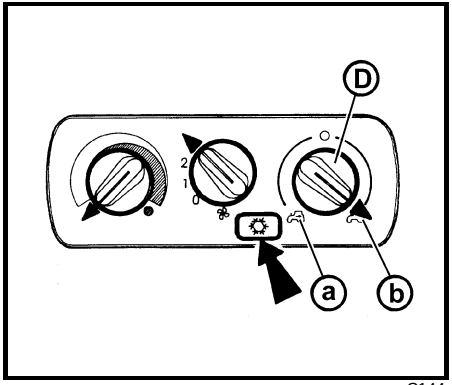
3 - Choose the desired blower speed (position 1, 2, 3) by the blower switch (B).

4 - Set outlets to desired angle to avoid direct blowing to persons in the cab.

5 - Switch over the control lever of the heating valve (A) to the left-hand position.



C143



C144

FAST COOLING THE CAB SPACE

Process in the following way:

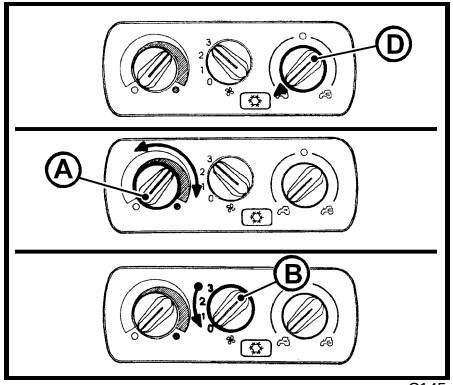
1 - Set the control of air circulation in the cab (D) to the position of inner re-circulation.
2 - Choose the desired blower speed (position 1, 2, 3) by the blower switch (B).
3 - Switch-in the air-conditioning system by the switch (C).
4 - Set outlets to desired angle to avoid direct blowing to persons in the cab (possible illness because of intensive cooling of parts of persons bodies).

OPERATION OF HEATING OR AIR-CONDITIONING DURING OPERATION OF TRACTOR

With inner air re-circulation switched-in, the inlet of fresh air is closed and it comes to breathing-up of cab space by the operators. This state can cause feelings of tiredness.

Note: When working, set the control (D) according to your individual requirements at temperature in a position between (a) and (b) so that the blower could suck air from outside of the cab through the filters.

When spraying pesticides and using the heating filter with active carbon, the re-circulation controller should be in position "air is drawn into from the outside" and the fan controller should be in the position "fan maximum work" to create overpressure in the cabin.

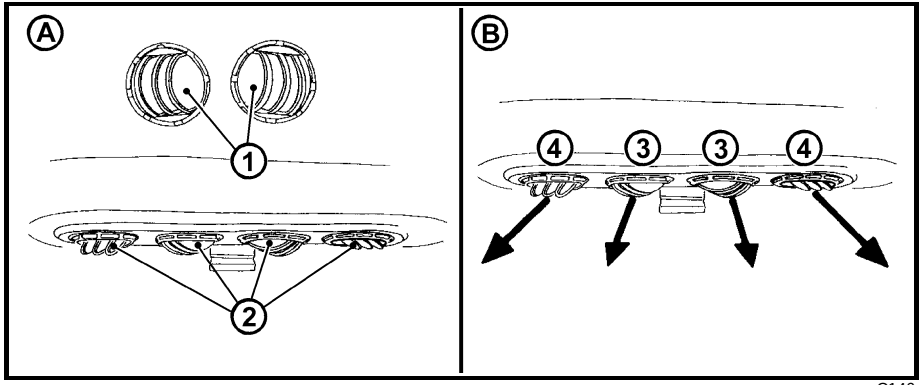


C145

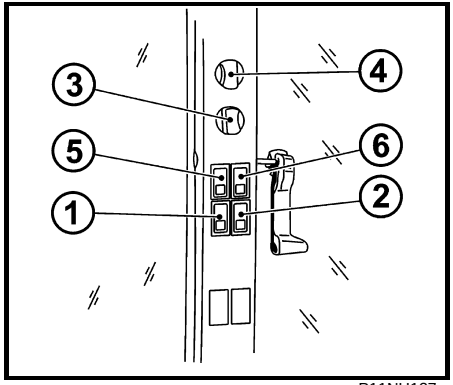
IMMEDIATELY AFTER COOLING DOWN THE CAB

Immediately after cooling down the cab and reduction of the inner temperature to desired level we recommend:

- Switch over the control of air circulation (D) from position (b - air re-circulation) to position (a - outer air suction)
- Perform fluent regulating of air temperature with switched-in air-conditioning by means of half-opening of the heating valve (A). At this setting, air going into the cab from the outlets is not dried so intensively.
- You can perform fluent regulating of air temperature with switched-in air-conditioning by means of decreasing of blower power by switching the control (B) to position 1 or 2.



C146



P11NH127a

HEATING AND AIRCONDITIONING OUTLETS

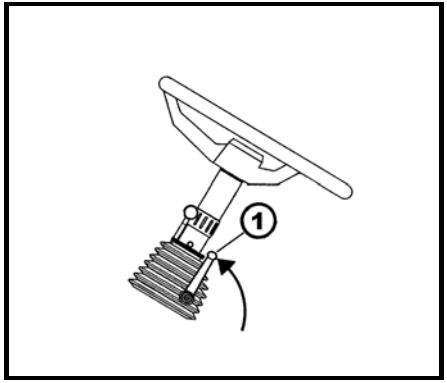
A - Adjustable outlets of heating (2) and ∗air-conditioning (1).

DEFROSTING THE FRONT WINDSHIELD

B - For fast defrosting of the front windshield direct the middle outlets of heating (3) with angle of ca 45° towards the windshield. Direct the side outlets (4) with angle of ca 45° towards the cab corners.
After defrosting of the front windshield, direct the side outlets to towards the side glasses of the doors and defrost the glasses step by step. After defrosting, the outlets should be adjusted to such direction so that air could not directly blow to the driver but down to driver's legs.

CONTROL PANEL ON RIGHT CAB PILLAR

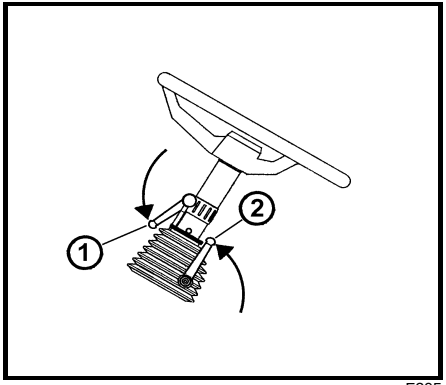
6 - switch of front working lights on cab roof
7 - switch of rear working lights on cab roof
8 - rear window wiper switch
9 - two-position switch of the windscreen wiper and washer
10 - *rear mirrors heating switch
11 - *rear window defroster switch



W1

***TILT STEERING WHEEL**

Adjusting the angle of the wheel
The angle can be adjusted by tilting the wheel after it is unlocked by moving the lever (1) in the direction shown by the arrow. After adjusting, lock the wheel by pressing the lever (1) in the opposite direction than shown by the arrow.



F205

***TILT AND TELESCOPE STEERING WHEEL**

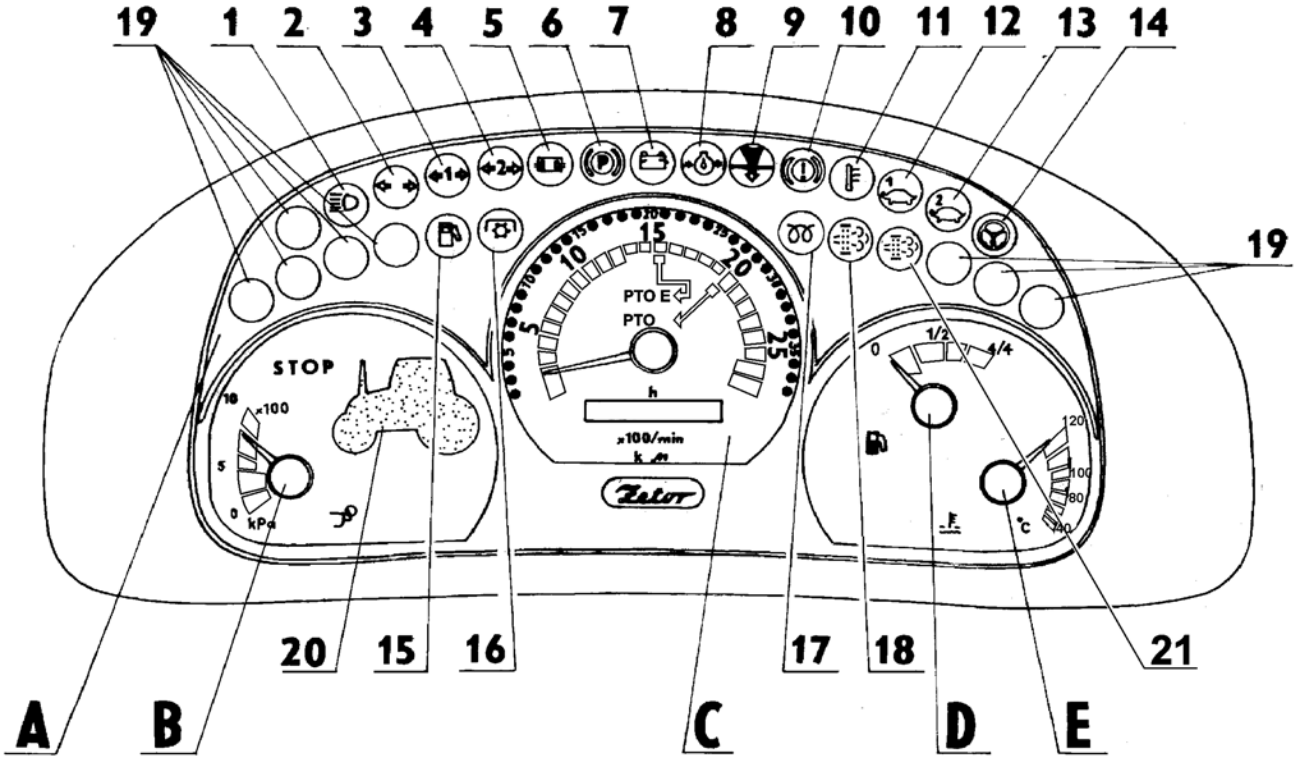
Tilt column of the steering wheel enables to adjust the angle and height of the wheel.

Adjusting the height
To adjust height, pull the wheel up or push it down after it is unlocked by moving the lever (1) in the direction shown by the arrow. After adjusting, lock the wheel by pressing the lever (1) in the opposite direction than shown by the arrow.

Adjusting the angle
To adjust angle, tilt the wheel after it is unlocked by moving the lever (2) in the direction shown by the arrow. After adjusting, lock the wheel by pressing the lever (2) in the opposite direction than shown by the arrow.

After adjusting, tilt the lever (2) towards the dashboard and the lever (1) in such a way so that it is parallel to the steering wheel column axis.

Pushing the levers in the direction farther from the steering wheel column changes the position of the levers as desired.


19
1
2
3
4
5
6
7
8
9
10
11
12
13
14
19
STOP
PTO E
PTO
h
x100/min
Zetor
20
15
16
17
18
21
A
B
C
D
E

B21b

ACQUAINTANCE WITH TRACTOR

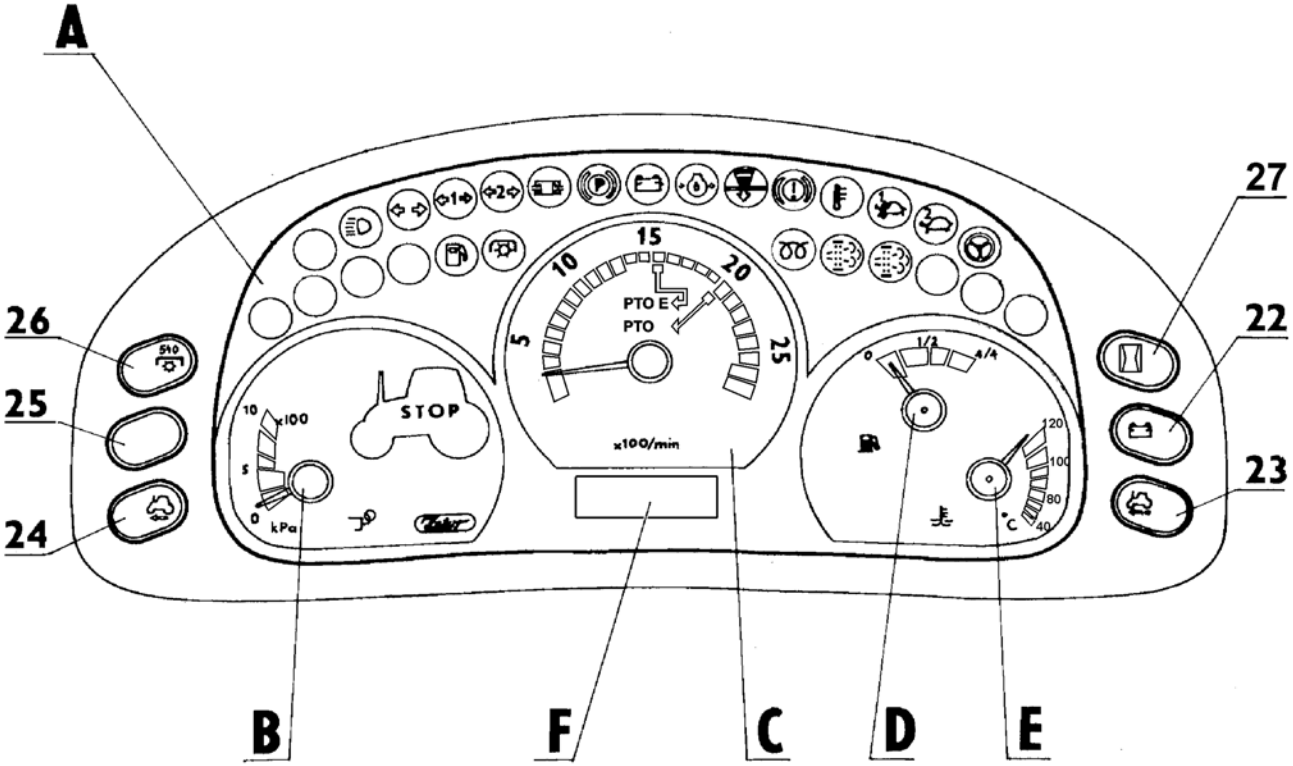
DASHBOARD

DESCRIPTION OF INSTRUMENTS

A - Indicator lights
B - Air pressure gauge
C - Speed indicator with counter of operational hours of the engine and symbols indicating speed of the engine, at which nominal speed of the rear output shaft is reached depending on speed on the rear output shaft.
D - Fuel-content gauge
E - Cooling fluid thermometer

INDICATOR LIGHTS

1. High beams (blue). Indicate that high beams are on.
2. Indicator of direction indicator lights (green)
3. Indicator of direction indicator lights of the 1st trailer (green)
4. Indicator of direction indicator lights of the 2nd trailer (green)
5. Indicator of minimal air pressure in the brake system (red). Indicated a drop of air pressure for air brakes of the trailer under critical value, i.e. 450kPa.
6. Manual brake (red). Indicates applied manual brake.
7. Recharging (red). During run of the engine it is on in case of a fault in recharging. It must be permanently on when the engine is stopped.
8. Indicator of lubrication (red). During run of the engine it shall be on if pressure of oil drops under 120 to 60kPa an on if engine is stopped.
9. Reserve.
10. Reserve.
11. Reserve.
12. Reserve
13. Reserve.
14. This indicator (red) indicates a fault in the steering hydrostatic system.
15. Fuel (orange). It is on when level of fuel in the fuel tank drops under 1/6 to 1/10 of its volume.
16. Indicator of disengagement of the output shaft clutch (red).
17. Glow plug (yellow). Indicates activation of the device for facilitation of start of the engine.
18. Reserve.
19. Reserve.
20. Warning indicator (red). It is on in case of an air pressure drop under a critical value, i.e. 450kPa, with engaged parking brake, with charging failure or with low pressure of oil in the engine.
21. Reserve


A
26
25
24
27
22
23
B
F
C
D
E
540
STOP
PTO E
PTO
x100/min
kPa
x100
1/2
1/4
°C

F54d

DIGITAL DASHBOARD

A digital dashboard is installed upon request.

DESCRIPTION OF INSTRUMENTS

A - Indicators
B – Air pressure gauge
C – Engine speed indicator
D – Fuel-content gauge
E – Cooling fluid thermometer
F – Display

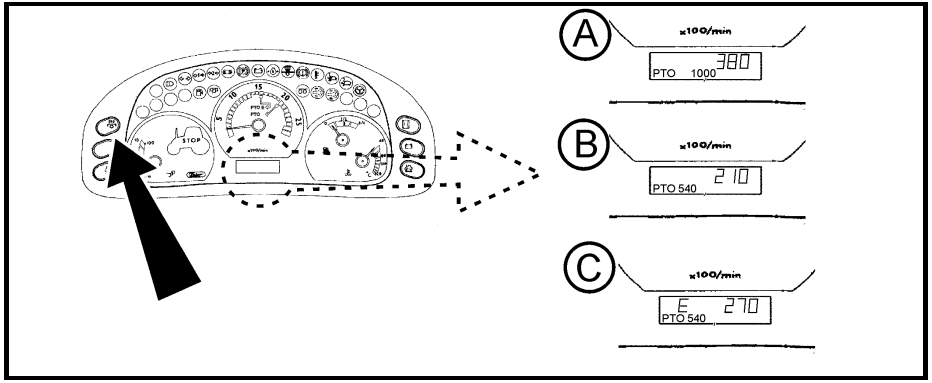
INDICATORS & PUSHBUTTONS

Layout of the indicators on the digital dashboard is identical with analog dashboard.
After pressing the selected pushbutton the display shows the respective symbol and value.

22. Battery voltage button: The voltage value is displayed on the display (with the resolution of 0.1 V).
23. . Button of the number of covered kilometres (per day or since the last reset). The number of kilometres is shown on the display. The value can be reset with long pressing of the button.
24. Button of immediate travel speed in km.h-1, which is displayed on the display
25. Free
26. PTO button. The rpm value with the resolution of 10 rpm is shown on the display.

Serves only for operation data display

27. The switch of hours of operation. The information is displayed on the display



F54e

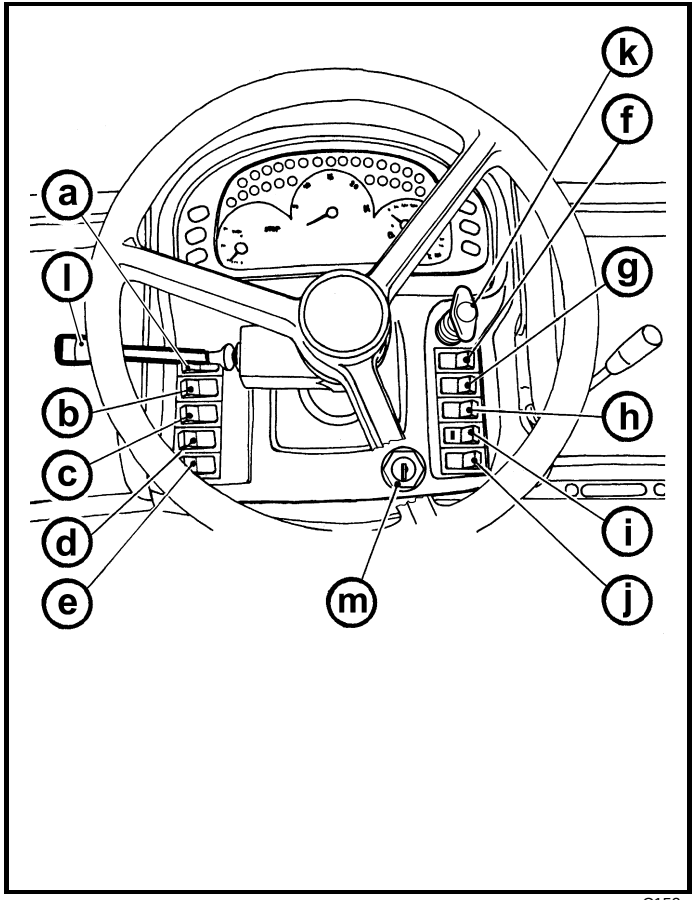
DISPLAY OF PTO SPEED

By pressing the switch marked with the arrow, you will display the PTO speed in the left and right parts of the display. It is a number of revolutions with engaged PTO independent revolutions.

By pressing the buttons gradually, you will induced the number of PTO revolutions for individual gears of PTO revolutions.

A - for 1000 revolutions
B - for 540 revolutions
C - for 540E revolutions

The button serves only for displaying data.



C152

SWITCHERS, SWITCHES AND LEVERS

a - Switch of lighting (off, parking lights, front headlamps).

b - Switch of low beams in the front mask and low beams on the cab.

* Option: the lights on the cab may be controlled by this switch independently on the lights in the front mask (on/off).

c - Switch of the rear fog light (on/off). Function of the fog light is indicated by an illuminated symbol on the switch.

d - Switch of the rear working headlamp on the cab column (on/off). Function of the working headlamp is indicated by an illuminated symbol on the switch.

e - Switch of warning lights.

f - Switch of the front driving axle. Switched on front driving axle is indicated by an illuminated symbol on the switch.

g - Switch of the light beacon (on/off).

h - Switch of working lights in the front mask (on/off). Function of the working lights is indicated by an illuminated symbol on the switch.

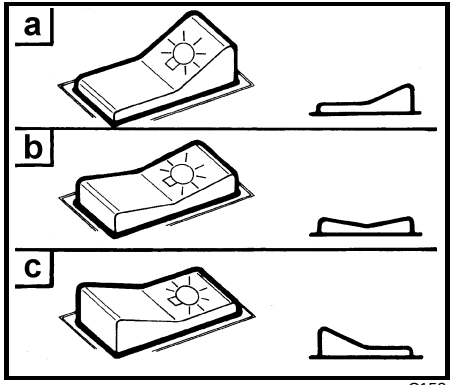
i - Switch of the front output shaft (on/off). Function of the front output shaft is indicated by an illuminated symbol on the switch. The switch is equipped with a mechanical catch against unintentional switching. When switching on press the catch towards the symbol.

j - Pushbutton of the differential lock.

k - Engine stop (stopping device).

l - Switch of direction indicators, low and high beams and horn and flash light.

m - Ignition box.



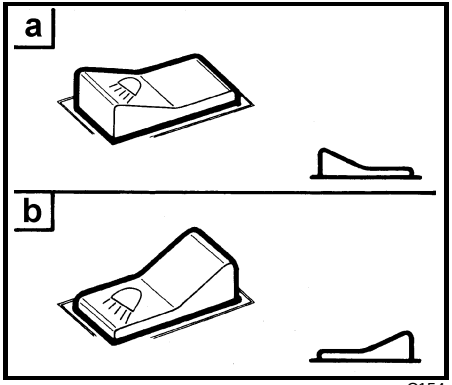
C153

LIGHT SWITCH (a)

a - Lights are “OFF“

b - Clearance lights and tail lights, license plate light and illumination of instruments are “ON“

c - All electrical appliances are connected as in “b“ position. Moreover low and high beam lamps are ”ON” (according to the position of toggle switch - turn signal, horn, lights, high and low beam headlight switch and acoustic horn)



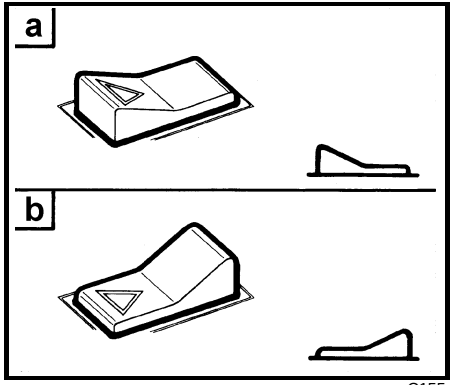
C154

SWITCH OF GRILL AND CAB HEADLIGHT (b)

a - Cab roof headlights are “OFF”

b - Cab roof headlights are “ON”

The switch controls the headlights in the mask grill or in the tractor cab roof. Use the cab roof headlights only if the front grill headlights are covered by attached implement fitted in the front three point hitch. Symbol on the switch indicates that cab roof headlights are “ON”. High beam can light in the grill only.



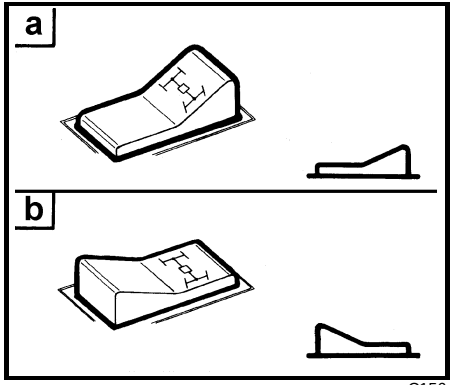
C155

WARNING LIGHT SWITCH (e)

a - Warning lights are “OFF“

b - Warning lights are “ON“

Flashing of indicator light on the dashboard indicates function of warning lights.



C156

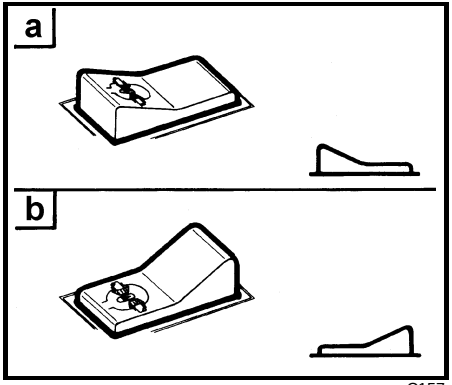
FRONT WHEEL DRIVE SWITCH (f)

Use the front driving axle for increasing the pulling force of the tractor when rear wheels slip.

a - Front driving axle disengaged
b - Front driving axle engaged

Front driving axle is engaged at stopped tractor (braked tractor; stopped engine, switch key is switched-of).

In the basic position, the front driving axle is engaged (indicator lamp is “ON”) and disengaging of the axle is made with the switch (indicator lamp is “OFF”).



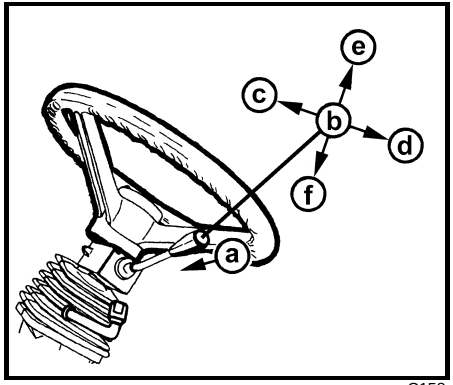
C157

PUSH BUTTON OF REAR, FRONT DIFFERENTIAL LOCKS (j)

a - Differential lock disengaged
b - Differential lock engaged

The differential lock is engaged by pressing the differential lock push button that returns into the previous position after loosing. Illuminating of the symbol on the switch indicates that the differential lock is engaged.

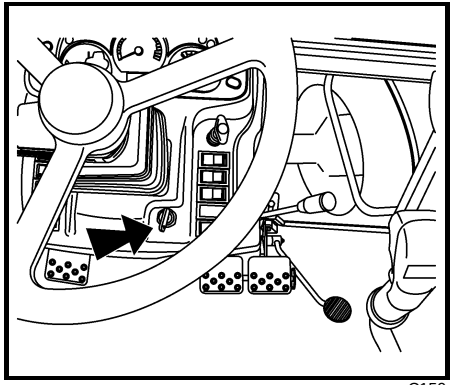
The differential lock is automatically disengaged after pressing the brake pedals. At tractors equipped with front driving axle equipped with engageable differential lock, this is engaged simultaneously with the rear differential lock engaging.



C158

TURN SIGNAL, HEADLIGHT AND HORN TOGGLE SWITCH (k)

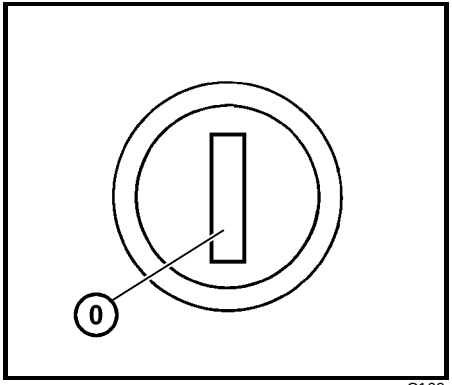
a - Acoustic horn – press the toggle switch in axis direction
b - Low beam light
c - Turn signal - right
d - Turn signal - left
e - Light horn
f - High beam light



C159

IGNITION BOX

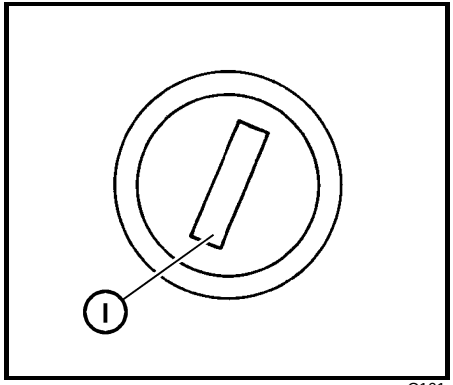
The ignition box is located on the dashboard, see the arrow.



C160

KEY IN "0" POSITION

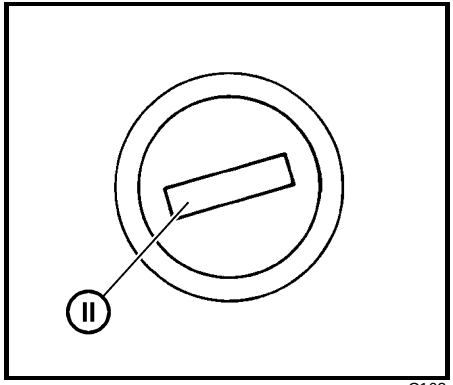
All electrical appliances controlled by the key switch are disconnected. The key can be removed.



C161

KEY IN "I" POSITION

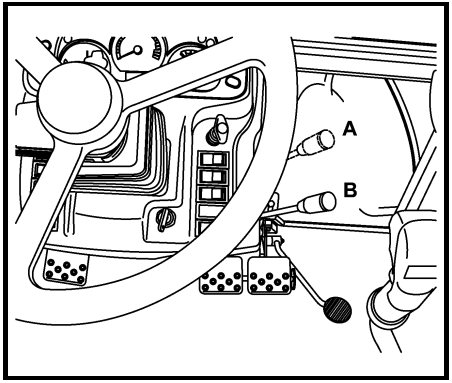
All electrical appliances controlled by the key switch are connected except of starter motor. The key is located in this position when running the engine.



C162

KEY IN "II" POSITION

Starter motor is connected in this position and all electrical appliances controlled by the key switch are connected except of wipers, washer, blower of cab and air-conditioning. The key turns automatically to “I“ position after starting.

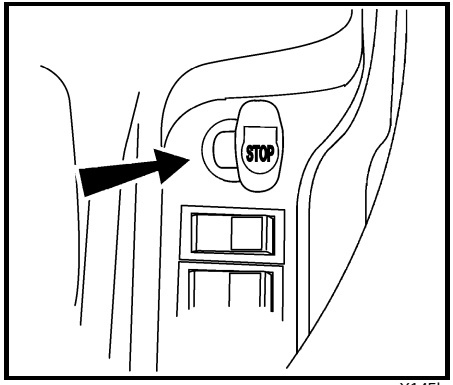


E144

LEVER OF MANUAL REFULATION OF FUEL

A - Maximum speed of the engine
B - Idle run

The lever allows setting of speed of the engine within range A to B.



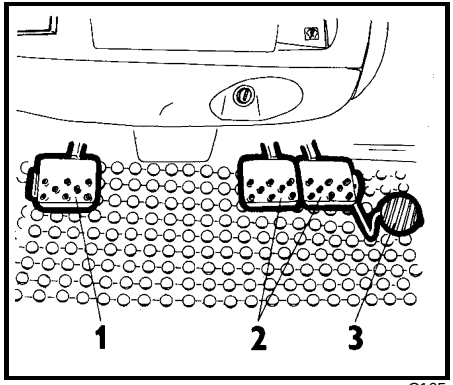
X145b

CONTROL OF ENGINE STOP

Pulling up the control knob causes immediate stop of the engine and it slight turning in pulled up position locks its position.

After the engine is stopped, turn back the control knob to its original position.

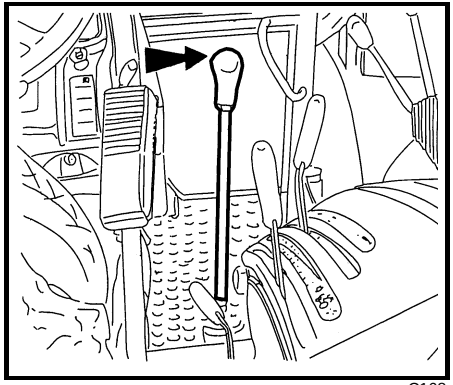
The engine cannot be started if the control knob remains pulled up.



C165

PEDALS AND LEVERS

1. Travel clutch pedal
2. Foot operated service brake pedals connected by latch
3. Foot throttle pedal

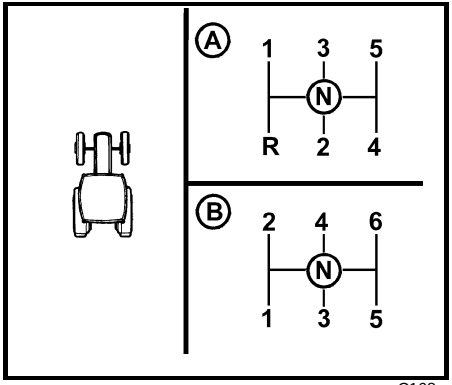


C168

GEAR SHIFTING LEVER

- Main gear shifting lever

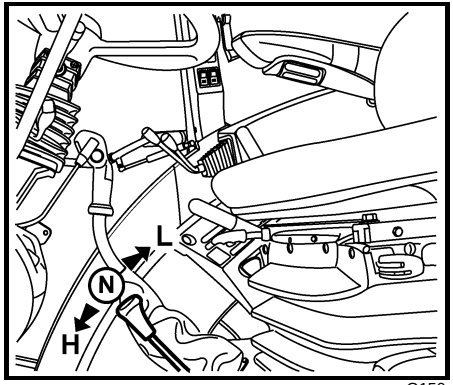
The handle of the gear shifting lever is red.



C168a

GEAR SHIFTING SCHEME

A - Standard tractor models
B - Tractor equipped with reversor

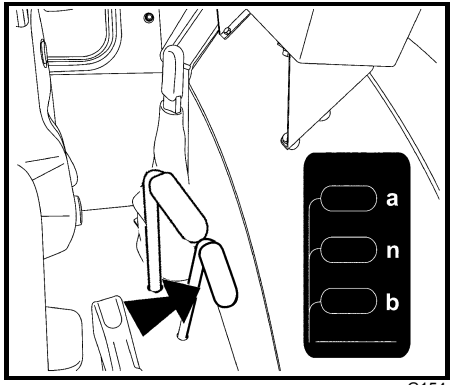


G150

LEVER OF SHIFTING OF ROAD AND REDUCED GEARS

H Road gears
N Neutral
L Reduced gears

Shifting is carried out with tractor in standstill.

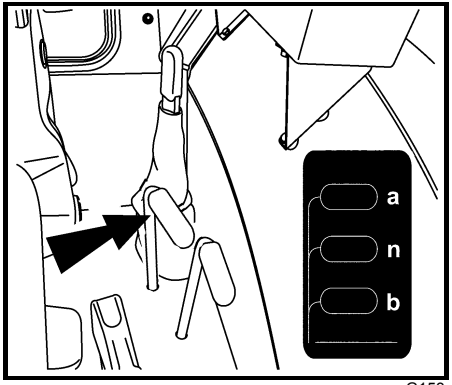


G154

PTO SELECTION CONTROL LEVER

- **a -** Independent speed of PTO shaft - PTO shaft speed depends upon the engine speed
- **n -** Neutral
- **b -** Ground speed of PTO shaft (through gearbox) - PTO shaft speed depends upon the engaged gear speed

Shifting is made when the tractor stops.
Standard tractor models are equipped with six-spline PTO shaft end.



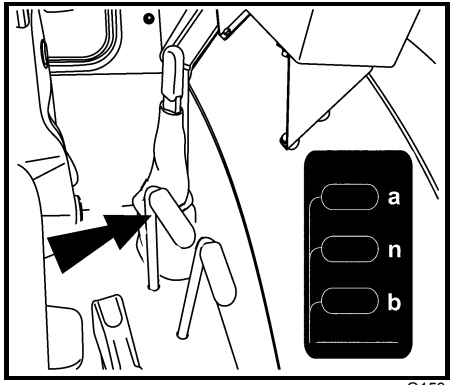
G153

*** PTO SPEED CONTROL LEVER**

- **a -** 540 rpm
- **n -** Neutral
- **b -** 1000 (540E)rpm

Shifting is made when the tractor stops.
* Tractor can be equipped with the following changeable PTO shaft ends as option:
six-spline PTO shaft end - 540 rpm
twenty-one-spline PTO shaft end – 1000 rpm.

PTO speed shifting of either 540 or 1000 rpm is possible regardless to assembled PTO shaft end (with six or twenty-one splines). PTO speed and the shaft end type must be chosen depending upon prescribed speed of implemented machine.



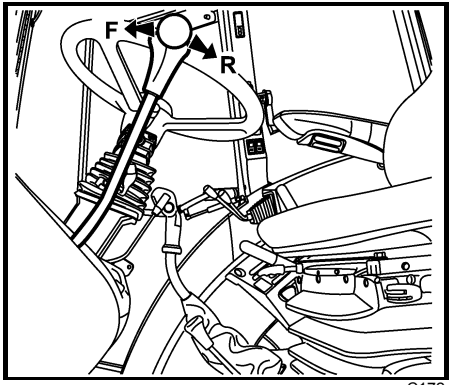
G153

*** PTO SPEED CONTROL LEVER - TRACTOR EQUIPPED WITH REVERSOR OR REDUCTOR FOR CREEPING GEARS**

- **a -** 1000 (540E) rpm
- **n -** Neutral
- **b -** 540 rpm

Gear 540 E serves for reaching of 540 rpm of the PTO shaft with preservation of economical engine speed.
Shifting is made when the tractor stops.

ACQUAINTANCE WITH TRACTOR



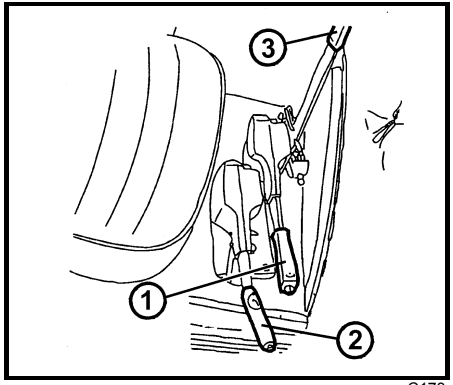
C172

*** REVERSOR SHIFTING LEVER**

F - Forward drive; lever in forward position

R - Backward drive; lever in backward position

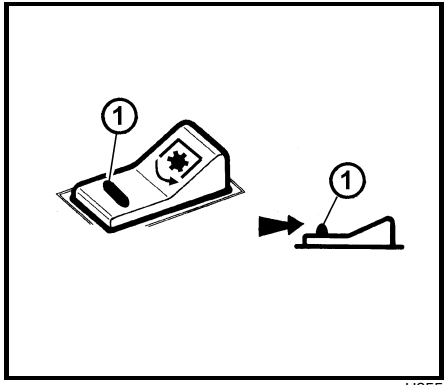
The reversor lever has no neutral position. Therefore neutral must be shifted by the main shifting lever for stopping the tractor.



C173

PARKING BRAKE LEVER, PTO SHAFT CONTROL LEVER AND PICK UP HITCH CONTROL LEVER

1. Control lever of PTO shaft clutch
2. Parking brake lever
3. Pick up hitch control lever



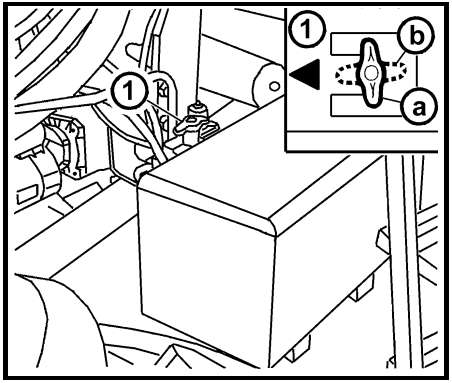
H355

SWITCHING ON THE FRONT OUTPUT SHAFT ZUIDBERG

The front output shaft Zuidberg is switched on with a switch on the dashboard. Work of the switch is signalled by burning symbol on the switch.

The switch is equipped with a mechanical lock (1) against accidental switching on. When switching on, press the lock (1) in direction of the arrow.

When starting the engine, the switch should be off.



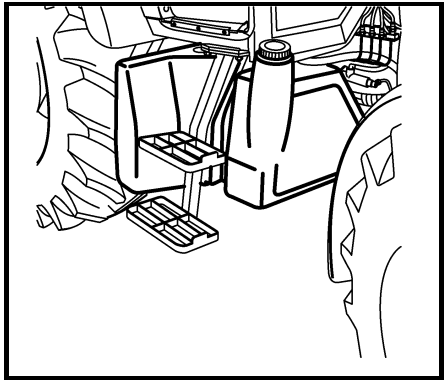
E157

BATTERY SWITCH

During long-time shutdown, repairs, failure or crash immediately disconnect the battery by means of the battery switch.

Battery switch is located on the left hand tractor side in front of the cab.

1 - battery connected
2 - battery disconnected



FUEL TANK

The fuel tank is fitted at the right-hand tractor side. A plastic 124- litre tank is installed as standard. At the customer's request a 150-litre tank may be installed.

Do not step on the fuel tank!

DRAINING PLUG OF FUEL TANK

Opening for draining of impurities is located in the bottom part of fuel tank.

OPERATION

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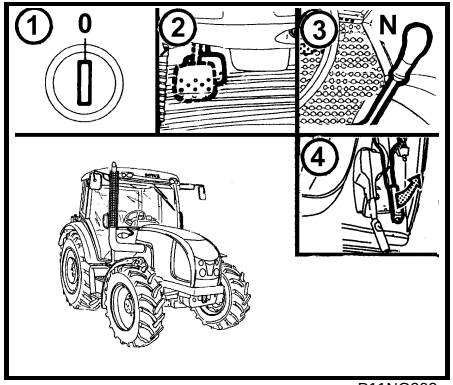
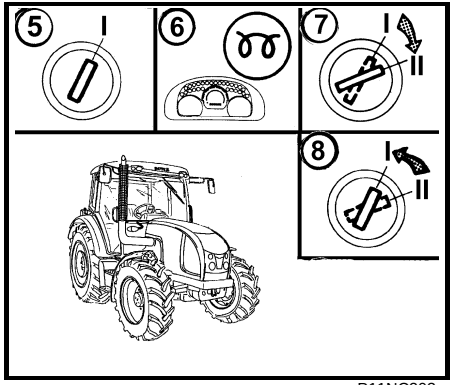
Be familiar with shifting pattern and test all positions of shifting lever at stopped engine before driving a new tractor.

Before driving, you must be sure that at normal operation the technical state of tractor corresponds to the safety traffic condition before driving.



P11NG202a



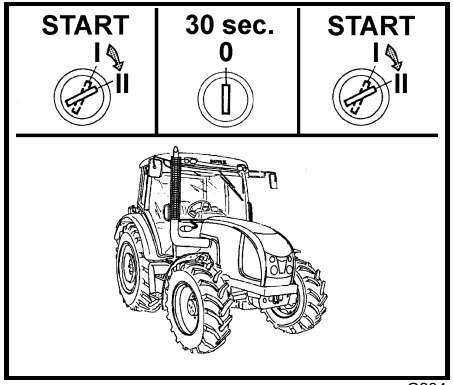
P11NC203a

ENGINE STARTING

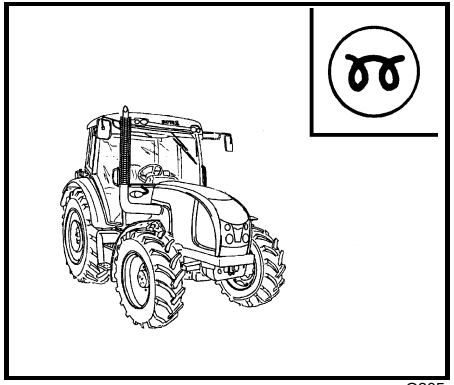
1. Insert the key into the key switch ("0" position).
2. Depress the clutch pedal.
3. Move the main shifting lever into neutral position.
4. Move the hand clutch lever into braking position (safety interlock switch will be actuated).
5. Turn the key from “0” position to "I" position. The indication lamp of glowing of thermo-start turns “ON“.
6. Wait until the indication lamp is off. (The time is dependent on coolant temperature).

In case that the indication lamp is only flashing instead of lighting, the glowing system failed (Chapter Signalling of glowing system failures). Let repair the indicated failure in a specialized workshop.

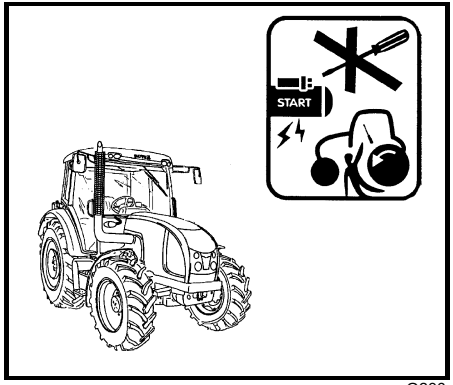
7. Immediately after indication lamp extinction (max. within 5 s) turn the key from the position "I" into "II" position (start).
8. Release the key immediately after starting the engine, it returns automatically into ”I” position. **Do not start longer than 15 sec**.



G204



G205



G206

IF ENGINE DOES NOT START

Turn the key into position "0", wait 30 seconds and repeat starting.

Maximum 6 starting cycles are allowed (15 seconds starting and 30 second interruption make one cycle). Farther starting of engine is allowed after cooling of starter motor to the ambient temperature.

Never help to the stopping engine by the starter motor. There is danger of damage of starter motor.

SIGNALLING OF GLOW SYSTEM FAILURES

Failure of glowing system is signalised by flashing of the signalling lamp of glowing.

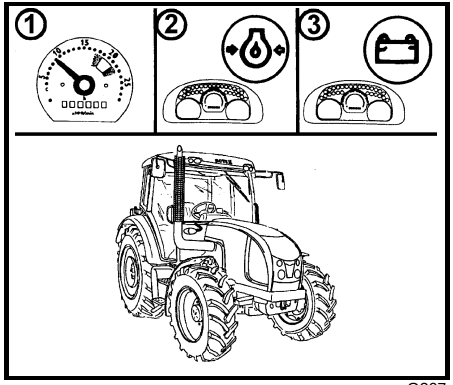
- If the signalling lamp of glowing is flushing one times in one second at stopped engine, glowing will take place in emergency regime as at low temperature regardless to coolant temperature.
- If the signalling lamp of glowing is flushing two times in one second at stopped engine, glowing is put of operation (out of function).
- If the signalling lamp of glowing is flushing permanently at running engine, failure of glowing regulator occurred and glowing was not finished. It is necessary to remove the failure immediately, because there is danger of battery discharging.

MANIPULATION WITH MOTOR STARTER

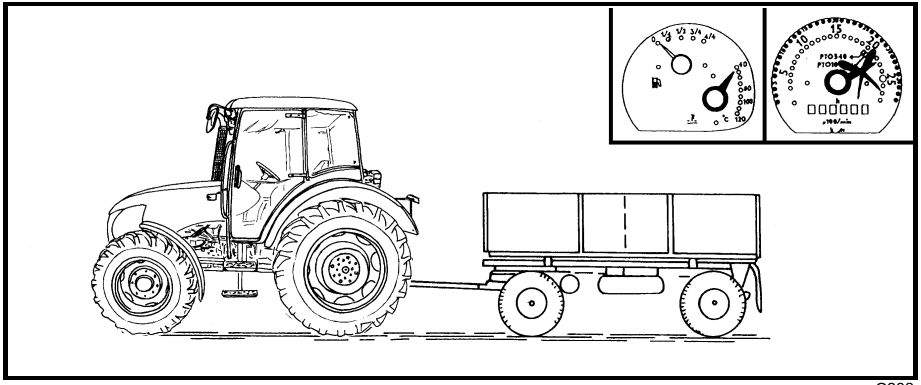
It is forbidden to start the tractor by short circuit of starter motor connectors!

Start the tractor from the driver's seat only!

Disconnect the ground battery pole, shift all levers into neutral position, including PTO engagement, when any manipulation with starter motor or repairing it! Starter motor connectors are covered with a cover.



G207



C208

IMMEDIATELY AFTER STARTING

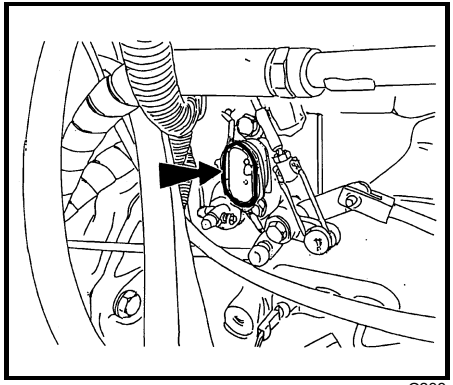
After starting set the engine speed to 800 up to 1000 min^{-1} and let the engine at idle running for ca 2 minutes without load.

In that time check lubrication, charging (indicator lights must be “off“) and other functions assuring the correct engine operation. Time of engine idle without load must be kept especially in winter season.

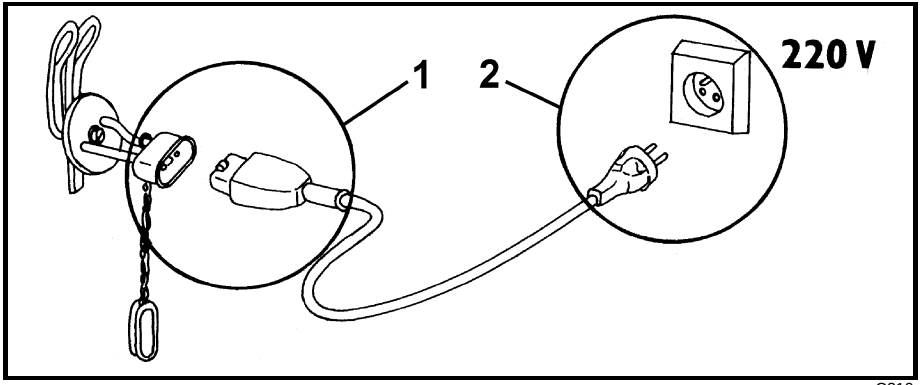
PREHEATING OF ENGINE

Continue with farther preheating the engine already while driving. Warming up the engine by long idle run or fast increase of speed is dangerous for the engine.

Do not exceed engine speed above 2 000 min^{-1} until the coolant temperature reaches 45 °C.



C209



C210

∗COOLANT HEATER

Coolant heater is fitted at the right-hand side of the engine block.
Output 1000 W
Voltage 220 V

STARTING THE ENGINE WITH USING OF COOLANT HEATER

Heater enables starting the engine at low ambient temperature by preheating the coolant. The electrical installation and its protection against electrical shock hazard must be done according to the valid regulations

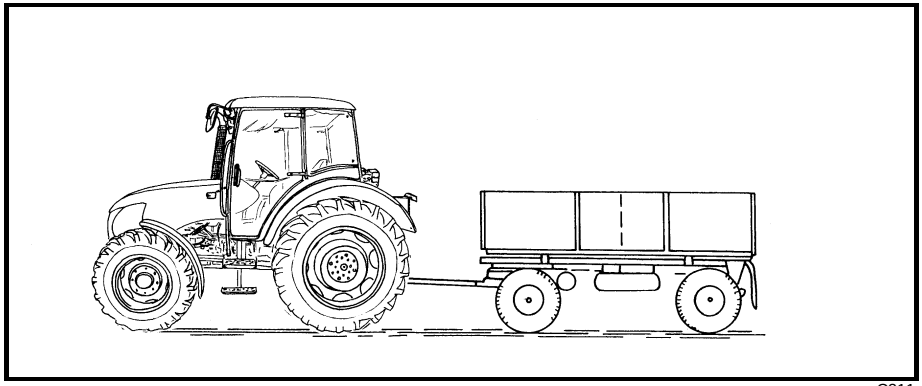
1. Plug the heater first.
2. Plug the cable with connected heater to 220 V mains after.

With regard to reduction of engine wear when starting at low temperatures, producer recommends to use the heater. Preheating time depends upon the ambient temperature (1 to 2 hours before supposed starting are sufficient).

After finishing of heating, unplug the mains first and the heater only after!

Electrical shock hazard!

It is necessary to ensure instruction of tractor operator's and regular revisions of the coolant heater including inlet cable accordingly with the valid standard of the country, in which the tractor is operated, minimum before each winter season.

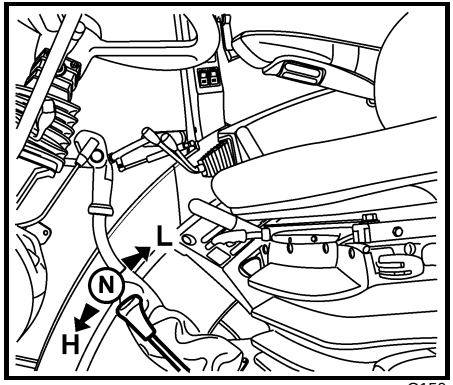


C211

SETTING IN MOTION

1. Depress the clutch pedal.
2. Shift the main shifting lever into neutral.
3. Start the engine.
4. Set the engine speed to 800 r.p.m.
5. Select road or reduced gear.
6. ∗ Shift the reversor lever into the desired direction of tractor movement (forward or reverse).
7. Shift the proper gear speed suitable for setting in motion.
8. Slightly increase engine speed.
9. Prepare the parking brake for releasing.
10. Release the clutch pedal up to point where the tractor starts to move and simultaneously with engine speed increasing, continue with smooth releasing the clutch.
11. Fully release the parking brake.
12. Accelerate smoothly and slowly.

⚠ *Very fast acceleration can cause overload of transmission, increased fuel consumption, excessive tire wear and damage of transported load. Use the 1st gear for accelerating when driving with heavy trailer uphill and in heavy terrain only.*



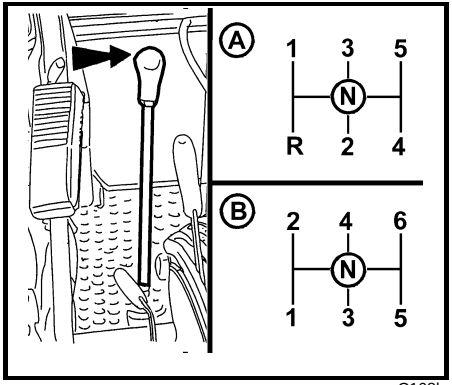
G150

SELECTION OF ROAD OR REDUCED SPEEDS

H road speeds
N neutral
L reduced speeds

When reduced speeds are used, gear change is the same as in road speeds. Considering low speed of the tractor, change nearly always means moving off from rest.

The change lever from road to reduced speeds may be moved only if the tractor is in rest.



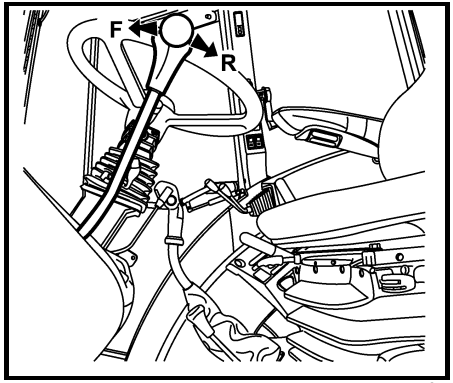
C168b

GEAR CHANGE

Gears are changed using the main change lever.

A - Standard type of the tractor
Gears and drive direction are changed using the change lever

B - The tractor is equipped with reversal.
Gears are changed with the main change lever, drive direction is changed with the reversal lever.

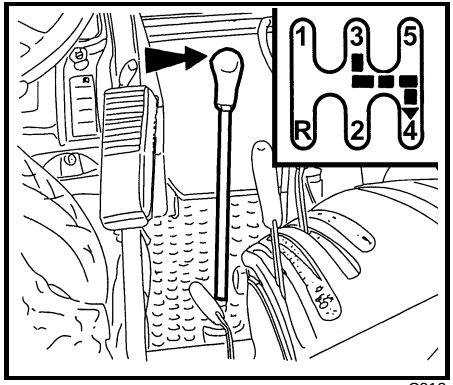


E149a

SELECTION OF DRIVE DIRECTION - *REVERSAL LEVER

F - forward drive; the lever is in the front position
R - backward drive; the lever is in the back position

Change is carried out when the tractor is in rest.

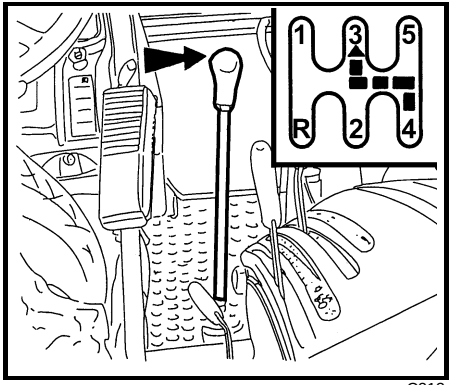


C212

SHIFTING FROM LOWER TO HIGHER GEAR SPEED

Depress the clutch pedal (clutch disengaged). In the same time loosen the throttle pedal and shift the proper higher gear speed. Fluently release the clutch pedal (the clutch starts engaging) and simultaneously increase engine speed.

Note: For increasing of service life of synchronizers, it is possible to apply so-called double clutching when shifting from lower gears to higher gears.

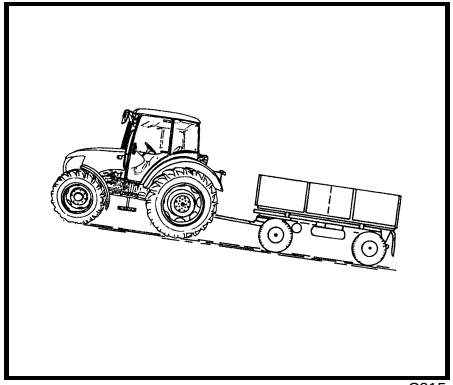


C213

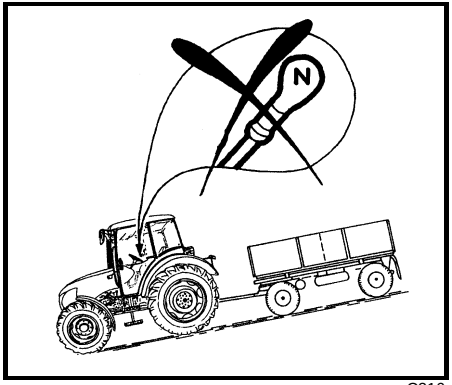
SHIFTING FROM HIGHER TO LOWER GEAR SPEED

Depress the clutch pedal and shift the shifting lever through neutral position to lower gear speed.

Note: For increasing of service life of synchronizers, it is possible to apply so-called “between-gas” when shifting from higher gears to lower gears.



C215



C216

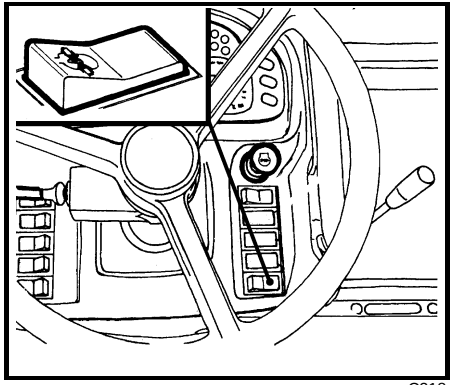
DRIVING UPHILL

Shift from higher to lower speed in time when going uphill, to avoid engine speed dropping below 800 min^{-1} and do not admit driving leading to engine stopping in consequence of overloading.

DRIVING DOWNHILL

Driving downhill without shifted speed gear is forbidden. If driving down a longer hill, shift so low gear the sharper one the hill is. If possible, shift the lower speed gear still before driving downhill.

Note: The gear you use reliably for driving uphill is safely suitable for driving downhill.



C218

DIFFERENTIAL LOCK

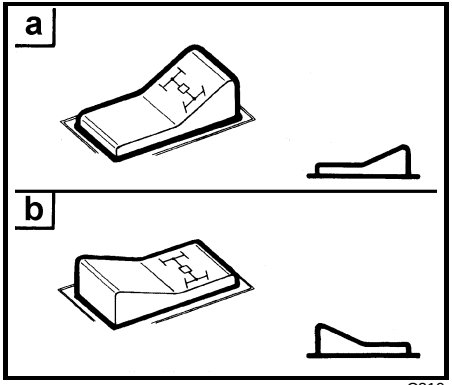
Engaging is made by depressing of the switch that will return in the original position after releasing.

Engaging of the differential lock is signalised with lighting symbol at the switch.

When depressing the brake pedals, the differential lock automatically disengages.

Engage the differential lock only when the tractor is stoped.

Do not use the differential lock, when turning.



C219

CONTROL OF FRONT DRIVING AXLE

In basic position, the front driving axle is engaged.

Engaging of the front driving axle is signalized with lighting symbol at the dashboard.

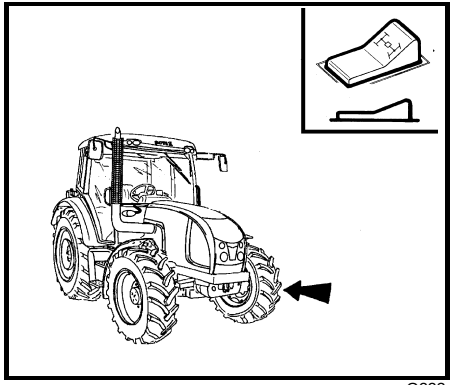
Disengaging is made with the switch that is situated at the dashboard.

a - Front driving axle disengaged

b - Front driving axle engaged

At the stopped tractor, the front driving axle is engaged at stopped tractor (braked tractor, stopped engine, key switch in “0” position).

At sudden drop of air pressure in the tractor air pressure system, the front driving axle is automatically engaged.



G223

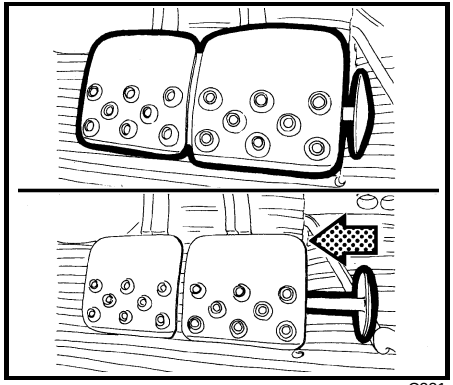
DRIVING WITH FRONT DRIVING AXLE ENGAGED

Use the front driving axle when the rear wheels are slipping and for increasing the traction force of tractor.

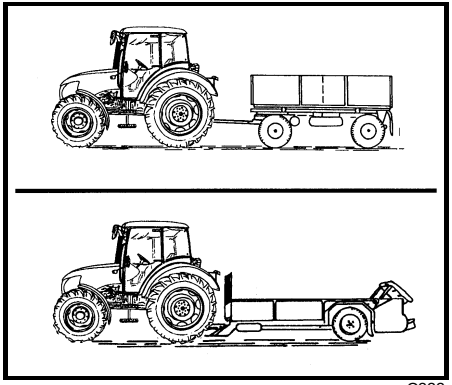
Driving with engaged front diving axle on the road and on hard surface causes excessive wear of front tires.

Permanent engagement of front driving axle is permitted if an agriculture machine or implement is attached in front of the tractor. This condition is specified in operator’s manual of each particular machine.

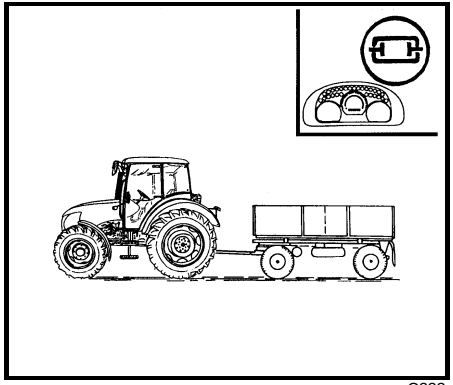
Maximum permitted speed of the set with such attachment is 15 $km.h^{-1}$.



C221



C222



C223

SERVICE BRAKES

Disc brakes are of disc, wet, hydraulically actuated, double pedal type with automatic pressure compensator.

Both brake pedals must be latched together when driving on the road.

Use unlatched pedals for braking right or left wheel separately when working in terrain and fields only.

Note: When driving downhill at steep descent with a trailer or semi-trailer that are equipped with air or hydraulic brakes, it is necessary to brake with service brake already from the beginning of decline!

AIR BRAKES OF TRAILERS AND SEMI-TRAILERS

Control of air brakes of trailers (semi-trailers), is performed in such manner that the brake effect of both vehicles is synchronised.

When braking with one brake pedal, the air brakes are not in function!

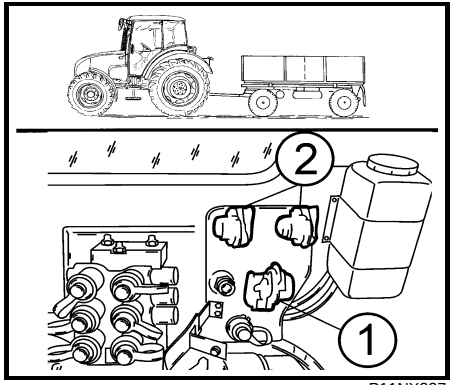
At pressure drop, the relief valve puts of operation secondary appliances (differential lock, disengaging of front driving axle, front PTO shaft).

When driving with a hitched trailer or semi-trailer, the service brake pedals must be connected together and secured with the latch!

WARNING SIGNAL OF AIR PRESSURE DROP

Decrease of air pressure under 450kPa is indicated by a red lamp and red symbol of a tractor with a sign STOP on the dashboard.

Tractor with a braked trailer or semi-trailer cannot continue in driving when air pressure drops under the critical margin 450 kPa, until it comes to pressure increase.

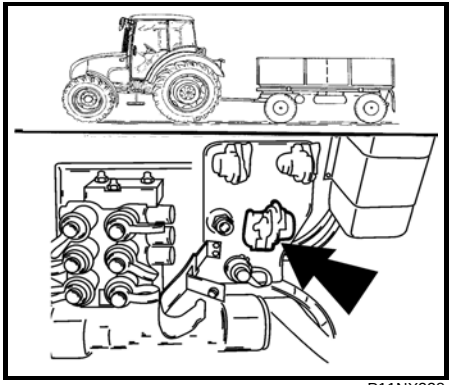


P11NX227

SINGLE AND DOUBLE HOSE BRAKES

1. Coupling of single hose air brake system.
2. Couplings of double hose air brake system.

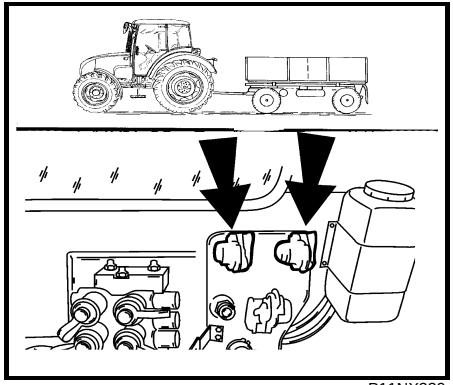
After disconnecting or without any hitched trailer or semi-trailer, it is necessary to cover the couplings with caps.


P11NX228

SINGLE HOSE BRAKES

Operating pressure is adjusted with the control valve at 600 ± 20 kPa.

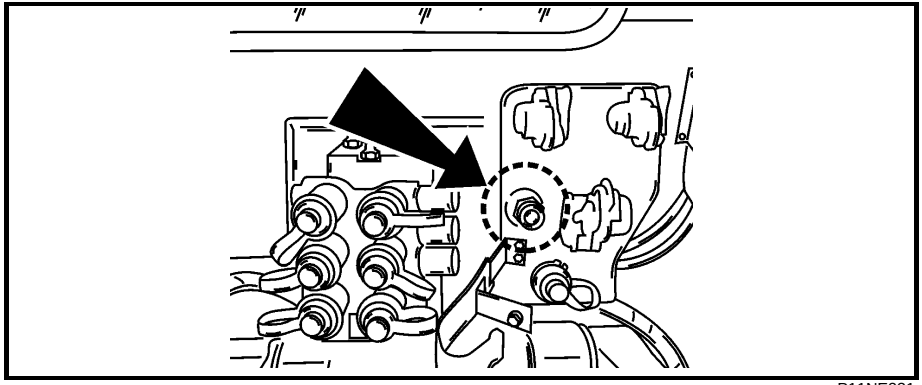
*Permitted speed of the tractor with a hitched trailer (semi-trailer) of maximum weight, approved for the stated tractor model, is maximum **30 km.h^{-1}**!*
Maximum permitted speed of the set is stated as the maximum permitted speed of the slower vehicle of this set.


P11NX229

DOUBLE HOSE BRAKES

Operating pressure is adjusted with the control valve at 740 ± 20 kPa. Capacity of air tank is 20 l. Left coupling cover is marked with yellow color (braking branch), right coupling cover is marked with red color (filling branch).

*Permitted speed of the tractor with a hitched trailer (semi-trailer) of maximum weight, approved for the stated tractor model, is maximum **40 km.h^{-1}**!*
Maximum permitted speed of the set is stated as the maximum permitted speed of the slower vehicle of this set.



P11NE231

TRAILER HYDRAULIC BRAKES

Connect the trailer or semi-trailer hydraulic brakes with the quick coupler marked with an arrow.

The control of the trailer (semi-trailer) hydraulic brakes and the control of the tractor brakes ensure synchronized braking effect of both the vehicles. Working pressure is enforced by oil supplied from the hydraulic gear-type pump that works permanently.

The trailer brake control valve is controlled by brake fluid pressure from the main brake cylinders depending on force that influences the brake pedal. Upon maximum pressing down the brake pedal, pressure on the coupling head should be 12 - 15 MPa. The trailer brake valve prefers the brake function to the hydraulic function.

In the event of shocks when you press down the brake pedal, you have to bleed the hose from the brake valve to the quick coupling.

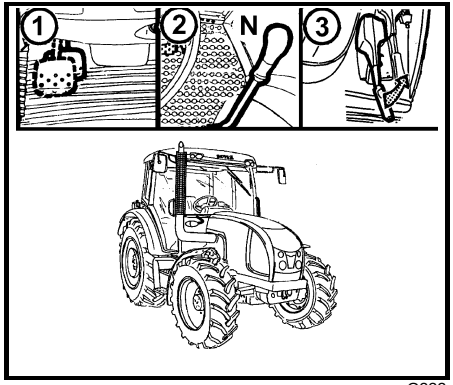
When driving with trailer, the brake pedals should be connected and safeguarded with a lock!

When braking with one brake pedal, the trailer hydraulic brakes are out of operation.

CONNECTION AND DISCONNECTION OF QUICK COUPLINGS OF THE TRAILER HYDRAULIC BRAKES

When connecting and disonnecting the quick couplings you should be aware of the rest of oil that is kept in the quick coupling plug or socket.

To protect environment you have to remove the oil residues after each disconnection of the quick couplings with a textile rag.

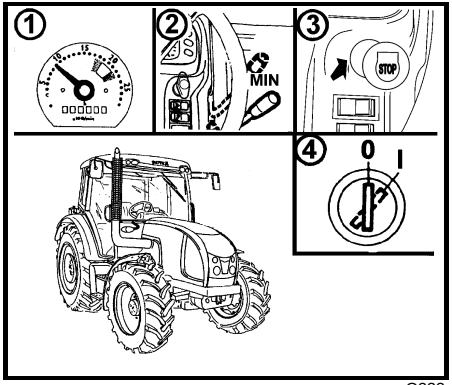


G232

STOPPING THE TRACTOR - PARKING BRAKE

At normal conditions stop the tractor slowly. Shortly before stopping:

1. Depress the clutch pedal.
2. Move the main shifting lever into neutral.
3. At each tractor stopping protect the tractor against accidental movement by setting of parking brake. Indicator lamp located on the dash indicates parking brake setting.



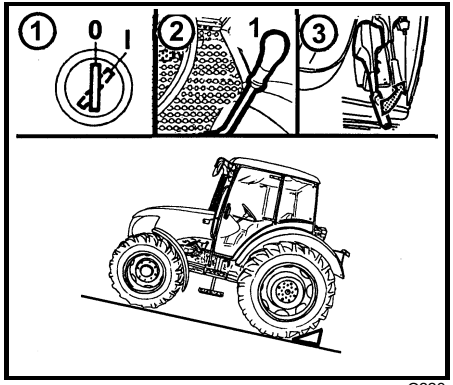
G233

STOPPING THE ENGINE

The engine must be cooled after work with fully loaded tractor.

1. Reduce engine speed to 800 - 1000 min^{-1} before stopping the engine and let it run without load approximately for 5 minutes.
2. Move the throttle control lever into STOP position.
3. Pull up the control of engine stopping (stopping device) and keep it in pulled position until the engine stops (push the control back).
4. After engine stopping is possible to turn the switch key into “0“ position.

Note: At stopped engine the front driving axle is automatically shifted into “on” position.



C230

LEAVING THE TRACTOR

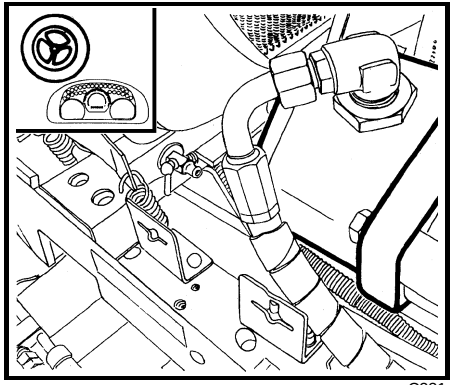
Before leaving tractor with safety cab do not forget to remove the key from the key switch in “0” position (only at stopping engine – the indicator of battery charging lamp must be “on”) and lock the cab. at cab tractors before leaving tractor. (The key cannot be removed when it is in “I” or “II” positions).

When the tractor stands on the hill, wheels must also be locked with blocks.

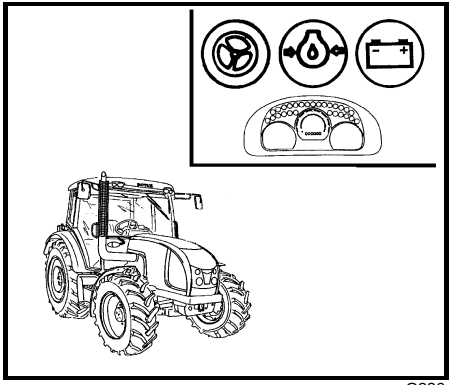
The tractor must be properly assured against accidental move:

1. *Engine must be “off”.*
2. *Speed gear 1 must be shifted.*
3. *Tractor must be braked with parking brake.*

When the tractor stands on the hill, wheels must also be locked with blocks.



C231



G236

WARNING SIGNAL OF HYDROSTATIC STEERING FAILURE

Failure of the hydrostatic steering pump is after the pump signalised at the dashboard with a corresponding symbol at drop of oil pressure below 120 kPa.

Note: At starting of the tractor or at low engine speed the signalling lamp can blink and if then the signalling lamp, after starting or increasing of speed, is “off”, it does not represent a failure. The system is in order.

IMPORTANT WARNINGS

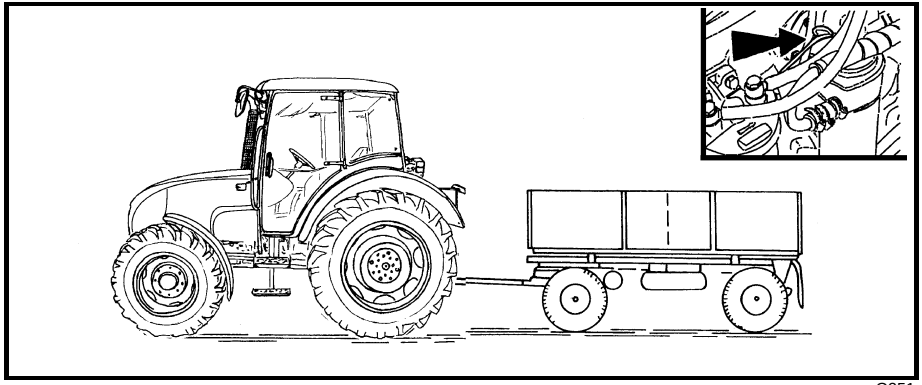
In case that indicator of lubrication, battery recharge or a fault of the hydrostatic steering is on during normal operation of the tractor, stop the tractor immediately, stop the engine and contact a specialised repair shop. This prevents a serious damage or breakdown of the tractor.

RUNNING-IN THE TRACTOR

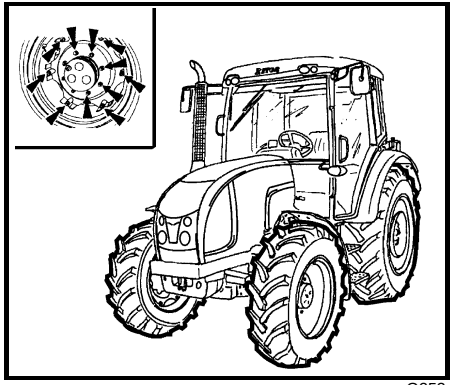
Page

General principles for running-in a new tractor in the course of first 100 operating hours 64
In the course of first 100 operating hours 64
From 100 operating hours 65

RUNNING-IN THE TRACTOR



G251



G252

GENERAL PRINCIPLES FOR RUNNING-IN A NEW TRACTOR IN THE COURSE OF FIRST 100 OPERATING HOURS

In the course of first 100 operating hours:

- do not load the engine excessively;
- avoid run with partial load of the engine;
- avoid excessive idle run time;
- check frequently level of oil in the engine (increased consumption of oil within this period is normal);
- checks screwed joints, in particular supporting parts of the tractor;
- remedy immediately all found faults; this prevents consequent damages and/or threats to safety of operation;
- follow also the same procedure after overhaul of the tractor

IN THE COURSE OF FIRST 100 OPERATING HOURS

- perform running-in in normal traffic;
- retighten nuts of front and rear wheels including connection flange/rim by the prescribed torques.

E256

FROM 100 OPERATING HOURS

After running-in you can work with the tractor without any limitation.

Operating values of engines of tractors:

Recommended operating speed	1400-2300 min^{-1}
Idle run	800±25 min^{-1}
Operating oil pressure	0.2-0.5 MPa
Oil pressure at idle run	min. 0.05 MPa
Max. temperature of cooling fluid	106 °C

TRANSPORT USE

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Multi-level quick-adjustable hitch CBM 68
Height adjustment and dismounting of the multi-level hitch CBM 68
Automatic hitch of the multi-level hitch device CBM 69
Modular system of hitches for trailers and semi-trailers 69
Bracket Module of pivoted pull bar 69
Pivoted pull bar 69
Bracket Module of pivoted pull bar with fixed pin 70
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Coupling of a single-axle trailer 71
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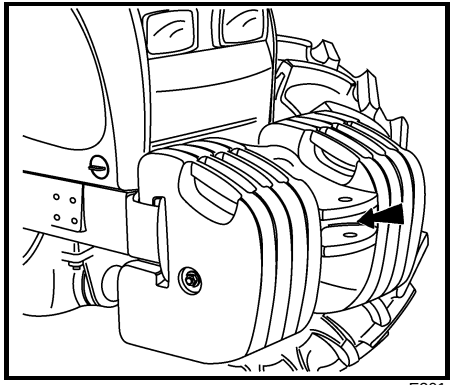
Hook of the mounting for a single-axle trailer 72
Maximum permitted vertical static loading of hitches for trailers and semi-trailers 73

Before a drive make sure that the technical condition ensures safe operation of the tractor.

In case that a trailer or implement is coupled, verify its coupling and proper fixing of the load. Never get out of the tractor to couple a trailer yourself. Pay also attention to your assistant.



E301

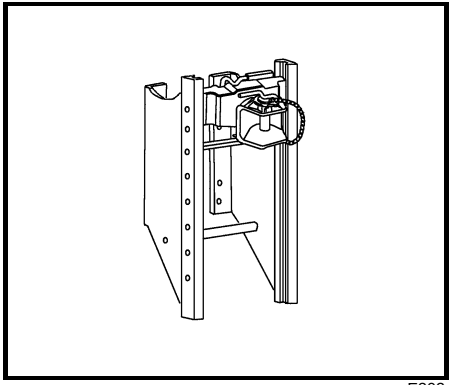
FRONT HOOK

It can only be used for towing of the tractor without trailer or other accessories attached.

Use a towing bar or rope to extricate the tractor.

Never use chains! Risk of a lethal injury with rupture of the chain!

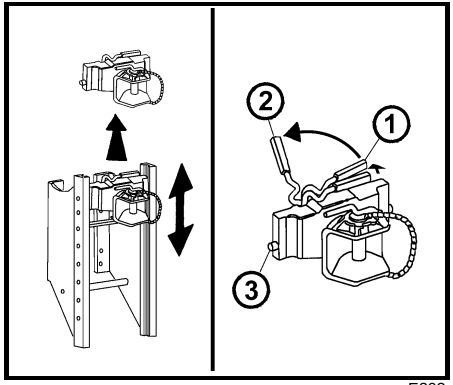
It is forbidden to use axles of the tractor (individual travel wheels) as a winch with extrication of the stuck tractor.



E302

MULTI-LEVEL QUICK-ADJUSTABLE HITCH CBM

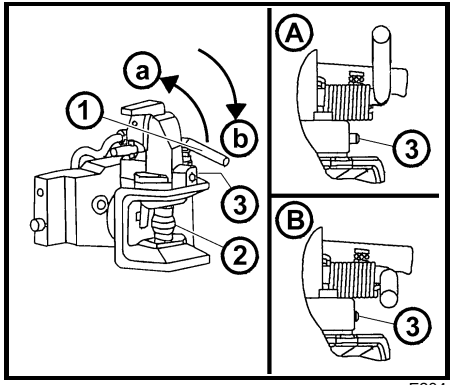
It is used for coupling of double-axle of light single-axle trailers. The guide hitch is height-adjustable. When working with farming mechanisms it is necessary to adjust height of the hitch or dismount it.



E303

HEIGHT ADJUSTMENT AND DISMOUNTING OF THE MULTI-LEVEL HITCH CBM

Moving of the control lever in direction of the arrow to position (1) unlocks the lever, consequent moving to position (2) engages the arrestment pins (3); this releases the multi-level hitch and its height can be adjusted or the hitch can be dismounted. After release of the lever from position (2) the arrestment pins (3) are disengaged and the lever returns automatically to its initial position.



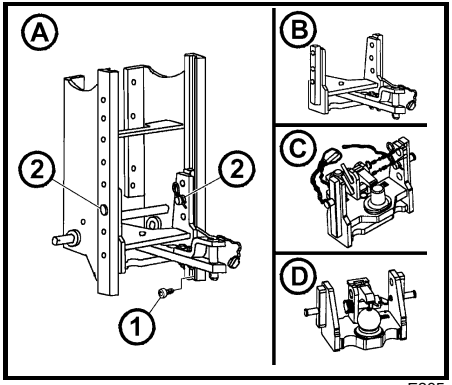
E304

AUTOMATIC HITCH OF THE MULTI-LEVEL HITCH DEVICE CBM

Moving of the lever (1) in direction of the arrow (a) slides the pin (2) into the upper position that is indicated by the extracted warning indicator (3), see fig. (A).

After sliding the hitch onto the pole eye the pin slides automatically into the trailer pole eye. The hitch pin (2) can be engaged manually by sliding the lever (1) in direction of the arrow (b). Engagement of the pin is indicated by the retracted warning indicator (3), see fig. (B).

After connecting the trailer it is always necessary to check whether the warning indicator (3) is retracted as shown on fig. (B).



E305

MODULAR SYSTEM OF HITCHES FOR TRAILERS AND SEMI-TRAILERS

Types of modules:

Fig. (B) – Pivoted pull bar bracket.

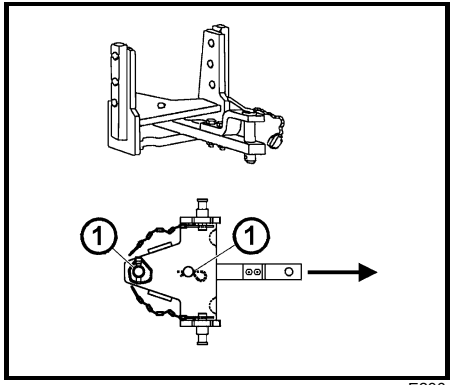
Fig. (C) – Pivoted pull bar bracket with fixed pin.

Fig. (D) – Bracket with ball ø 80.

Dismounting – fig. (A):

1. Dismount the locking screw (1).
2. Secure the module against fall, unlock and dismount the pins (2).
3. Slide out the module from the bracket downward.

Mounting is performed in reverse order.



E306

BRACKET MODULE OF PIVOTED PULL BAR

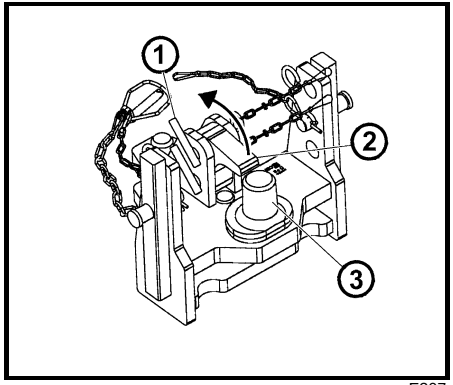
The bracket module of the pivoted pull bar is located in the multi-level hitch bracket.

PIVOTED PULL BAR

Dismounting:

1. Unlock and dismount the pins (1).
2. Pull out the pivoted pull bar in direction of the arrow.

Mounting is performed in reverse order.

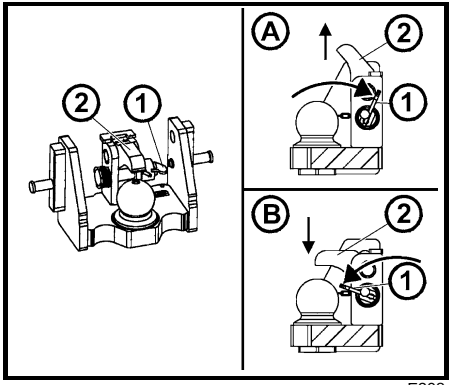


E307

BRACKET MODULE OF PIVOTED PULL BAR WITH FIXED PIN

Mounting and dismounting of the pivoted pull bar should be performed as described in the chapter “Pivoted pull bar”.
Coupling the pole eye to the fixed pin (3):

1. Unlock and dismount the pin (1).
2. Lift the locking wedge (2) in direction of the arrow.
3. Couple the pole eye to the fixed pin (3).
4. Return the locking wedge (2) to its initial position and lock it using the pin (1).

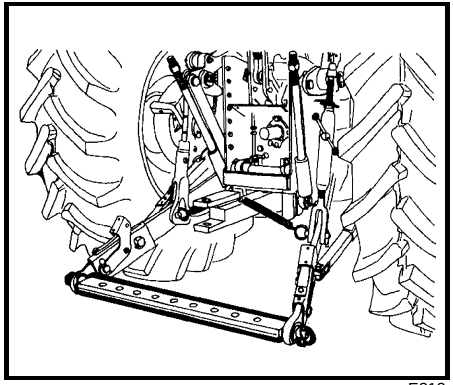


E308

BRACKET MODULE WITH BALL Ø 80

The bracket with ø 80 is used only for coupling of trailers with a coupling device designed for balls ø 80.

Fig. (A) – Unlocking of the hitch:
Moving of the lever (1) in direction of the arrow slides off the locking wedge (2).
Fig. (B) – Locking of the hitch. (B):
Moving of the lever (1) in direction of the arrow slides in the locking wedge (2).

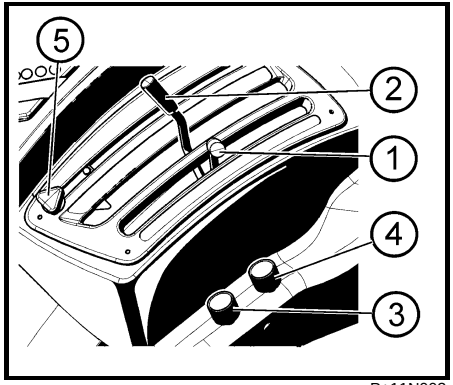


E312

***TOWING BAR**

Height of the towing bar can be adjusted within entire extent of the adjustable height. Only those farming mechanisms can be attached to the towing bar that load it permanently downwards.

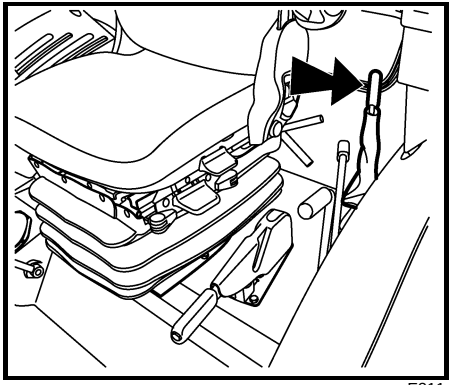
When working with the towing bar dismount the multi-level hitch and pivoted pull bar.



P+11N003

COUPLING OF A SINGLE-AXLE TRAILER

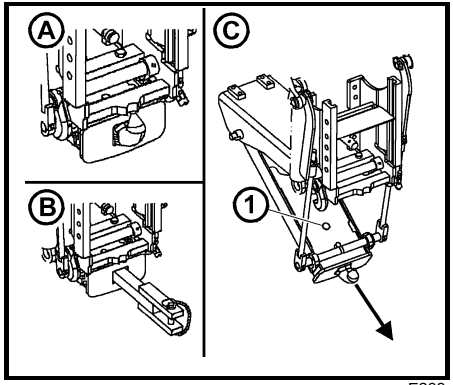
Coupling can be performed using the hydraulic circuit lever (2). The hitch hook with the trailer pole eye is lifted hydraulically to the position where the supporting hooks click under pins of the hitch carrier. The lifting arms of the hydraulic device then shall be lowered to lock the supporting hooks onto the carrier pins; the telescopic pull rods shall not be under any tension.



E311

UNCOUPLING OF A SINGLE-AXLE TRAILER

This can be performed after slight lifting of the hitch by the inner hydraulic circuit lever. Move the control lever backwards. The lever is located on the left side of the driver's seat. Lower the hitch using the inner hydraulic circuit lever and disconnect the trailer pole eye.



E309

HITCH CBM FOR SINGLE-AXLE TRAILERS

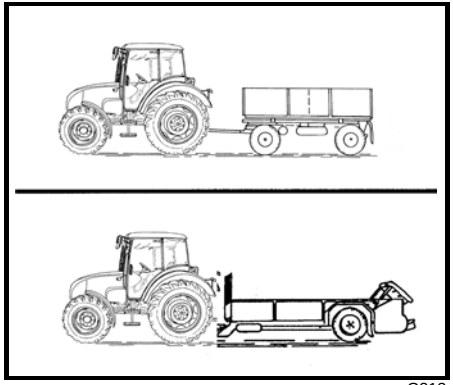
The hitch for a single-axle trailer can be equipped with a hook (A) that is designed for coupling of single-axle trailers having poles according to the standard ISO 5692 (inner diameter of the eye 50mm and height of the eye 30mm) or pivoted pull bar (B).

The coupling hook is lowered and lifted hydraulically using length-adjustable telescopic pull rods.

Replacement of the hook for the pivoted pull bar (C):

1. Lower the hitch.
2. Unlock and remove the pin (1).
3. Remove the hook in direction of the arrow.

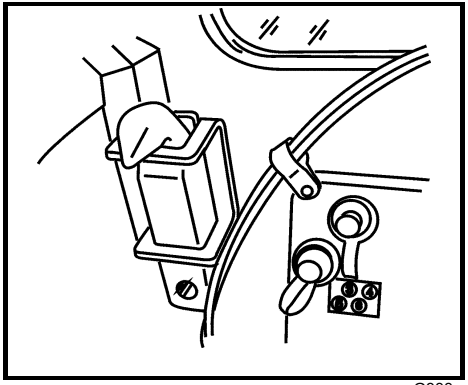
The pivoted pull bar is mounted in reverse order.



G313

COUPLING WITH A TRAILER OR SEMI-TRAILER

The tractor can be coupled only with a tractor trailer after matching of operating brakes of the tractor and pneumatic or hydraulic brakes of the trailer. In case of coupling with a semi-trailer the static loading of the rear axle of the tractor may not exceed the maximum permitted value.

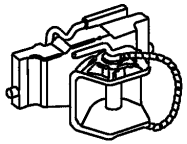
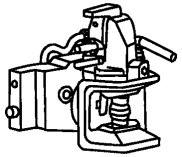
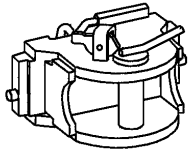
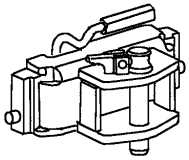


G900

HOOK OF THE MOUNTING FOR A SINGLE-AXLE TRAILER

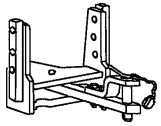
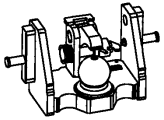
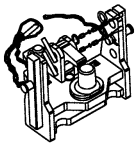
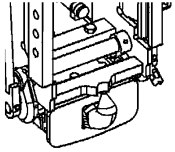
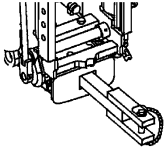
The hook of the mounting for a single-axle trailer is located in the bracket on the left-hand side of the cabin back wall.

TRANSPORT USE

MAXIMUM PERMITTED VERTICAL STATIC LOADING OF HITCHES FOR TRAILERS AND SEMI-TRAILERS					
Hitch type	Permitted vertical static loading	Diameter of hitch pin	Hitch type	Permitted vertical static loading	Diameter of hitch pin
	2,000kg ↓	31mm		2,000kg ↓	38mm
Hitch class D2			Hitch class C		
	2,000 kg ↓	43mm		1,500 kg ↓	28mm

Maximum weight of a coupled braked trailer or semi-trailer shall not exceed the value given on the type plate of the tractor and value given in the MOT certificate of the vehicle. Hitch of class C: max. weight of the trailer 6,000kg. Hitch of class D2: max. weight of the trailer 14,000kg.

TRANSPORT USE

MAXIMUM PERMITTED VERTICAL STATIC LOADING OF HITCHES FOR TRAILERS AND SEMI-TRAILERS								
Hitch type	Permitted vertical static loading	Diameter of the pin (ball) of the hitch	Hitch type	Permitted vertical static loading	Diameter of the pin (ball) of the hitch	Hitch type	Permitted vertical static loading	Diameter of the pin (ball) of the hitch
	736kg ↓	31mm		3,000kg ↓	80mm		fixed pin 2,000kg ↓	44.5mm
	3,000kg ↓	47mm		1,200kg ↓	32mm			

Maximum weight of a coupled braked trailer or semi-trailer shall not exceed the value given on the type plate of the tractor and value given in the MOT certificate of the vehicle. Maximum speed of the vehicle train is given by the maximum permitted speed of the slower vehicle of the vehicle train.

PTO DRIVE OF AGRICULTURAL MACHINES

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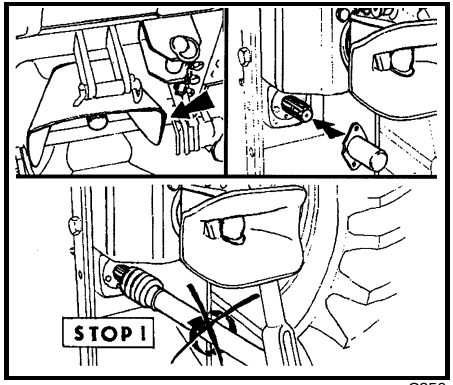
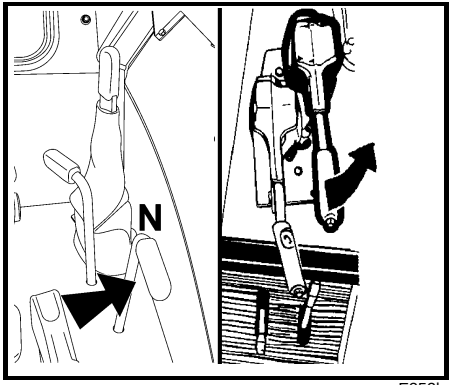
Hand control lever of PTO shaft clutch 76
∗Hand control lever of PTO shaft clutch with pneumatic control 77
Changable pto end pieces 77
Change of depending and independent rotations 78
∗ PTO speed control lever 78
∗ PTO speed control lever - Tractor equipped with reversor or reductor for creeping gears 78
Front output shaft Zuidberg 79
Engagement of the front output shaft Zuidberg 79
Maximum transferred power 79
Drive of machines with greater inertial masses 80

Before attaching of an implement, driven by means of the tractor PTO shaft, check the speed compatibility of both, it means tractor PTO shaft and implement driven shaft (540 r.p.m. or 1000 r.p.m.). Different PTO speed values may cause serious damages and injuries.

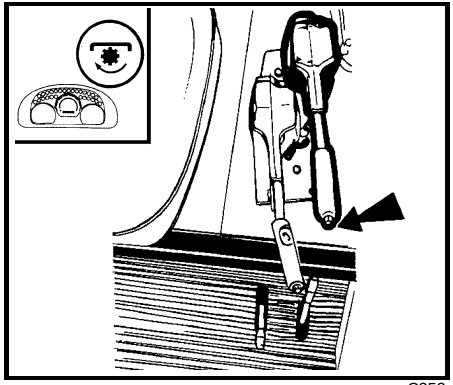
PTO DRIVE OF AGRICULTURAL MACHINES



C350



E352b


C352

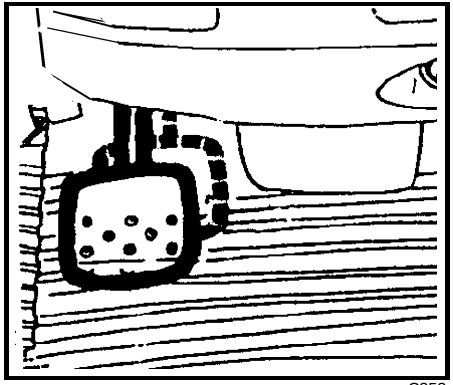
OPERATION WITH PTO

1. *When working with the output shaft pay attention to proper fixing of all covers.*
2. *After completion of work install always the output shaft cover.*
3. *Connect and disconnect the articulated shaft of the coupled mechanism to the rear output shaft of the tractor always when the engine is stopped, output shaft disengaged and lever of shifting of dependent and independent rpm of the output shaft in position N - neutral!*
4. *Connect and disconnect the articulated shaft of the coupled mechanism to the front output shaft of the tractor always when the engine is stopped and output shaft disengaged!*
5. *Perform any repairs or cleaning of parts of the coupled mechanisms driven by the output shaft only when the engine is stopped, output shaft disengaged and lever of shifting of dependent and independent rpm of the output shaft in position N - neutral.*

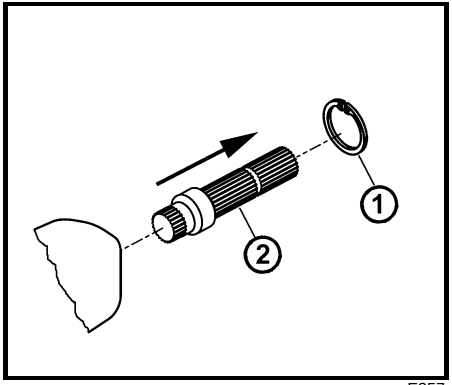
HAND CONTROL LEVER OF PTO SHAFT CLUTCH

With rising of the hand control lever of the PTO clutch into the upper position it comes to disengaging of the PTO clutch. The upper position of lever is indicated with indicator light located in the dashboard. The lever is automatically locked in the upper position with a latch. Releasing of locking and return of the lever into the lower position is possible after rising the lever and depressing the push-button at the front of the lever.

Upper position - clutch is disengaged
Lower position - clutch is engaged



C353



E357

∗HAND CONTROL LEVER OF PTO SHAFT CLUTCH WITH PNEUMATIC CONTROL

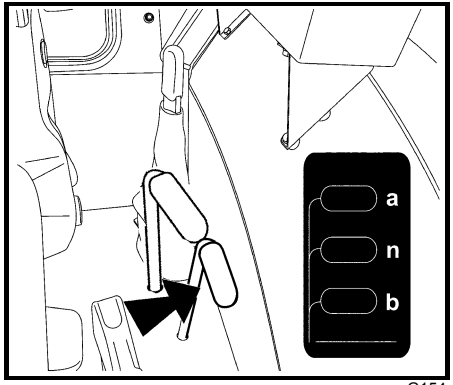
∗As option, the tractor can be equipped with disengaging of the PTO clutch with pneumatic control. The function of the hand control lever of the PTO clutch is same as standard tractor model. At air pressure of min. 500 kPa, it is possible, by depressing of the clutch pedal, to disengage the PTO clutch simultaneously with the travel clutch.

CHANGABLE PTO END PIECES

If equipped with reversation or creeper, the tractor can be equipped with 6-spline or 21-spline PTO end piece on request.
Changing the end piece:

1. Use circlip pliers to remove the circlip (1).
2. Remove the end piece by pulling it in the direction shown by the arrow (2).
3. Procede contrariwise to place the end piece, take proper care while placing the circlip (1).

PTO DRIVE OF AGRICULTURAL MACHINES



G154

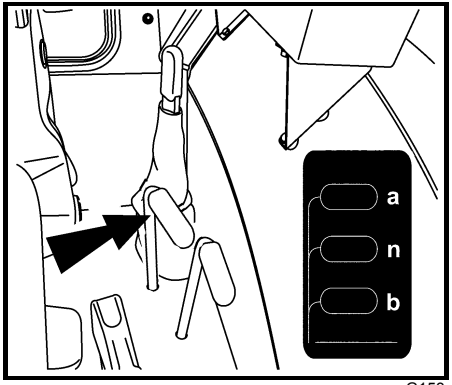
CHANGE OF DEPENDING AND INDEPENDENT ROTATIONS

Change is implemented when the tractor is in rest and the hand lever switching off the output shaft coupling is off.

a - output shaft independent rotations (number of rotations depends on number of the engine rotations)

n - neutral position. Use it to make easier connection of the cardan shaft of an agricultural machine. The end piece of the rear output shaft may rotate freely.

b - output shaft depending rotations (number and direction of the rotations depend on the gear and position of the reversal lever).



G153

*** PTO SPEED CONTROL LEVER**

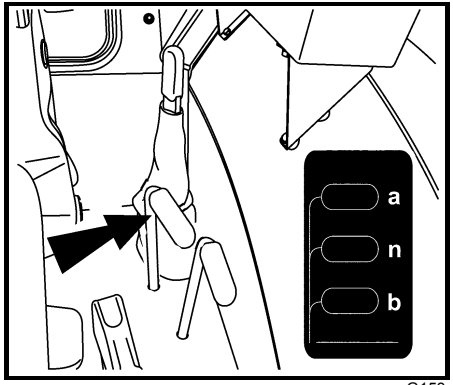
a - 540 rpm^{-1}

n - neutral

b - 1000 (540E) rpm^{-1}

The tractor standard type is equipped only with 540 rpm^{-1} and the lever is not installed.

Change is implemented when the tractor is in rest and the hand lever switching off the output shaft coupling is off.



G153

*** PTO SPEED CONTROL LEVER - TRACTOR EQUIPPED WITH REVERSOR OR REDUCTOR FOR CREEPING GEARS**

a - 1000 (540E) rpm^{-1}

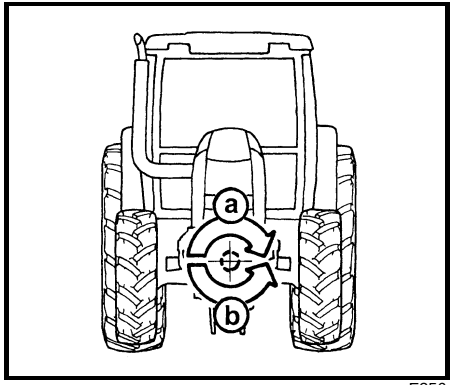
n - neutral

b - 540 rpm^{-1}

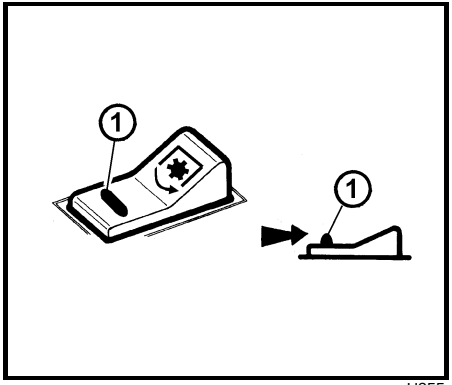
The tractor standard type is equipped only with 540 rpm^{-1} and the lever is not installed.

Change is implemented when the tractor is in rest and the hand lever switching off the output shaft coupling is off.

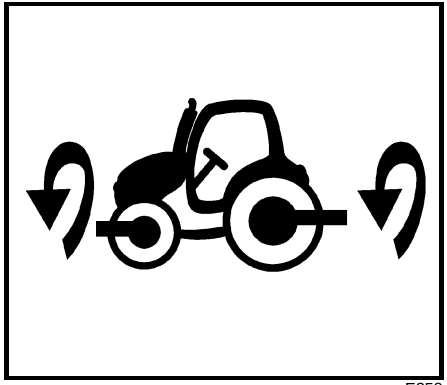
PTO DRIVE OF AGRICULTURAL MACHINES



E356



H355


E358

FRONT OUTPUT SHAFT ZUIDBERG

The front output shaft is equipped with a fixed 6- or 21-spline terminal and its speed is 1,000 rpm only.

The tractor may be equipped with an optional front output shaft with both directions of rotation:

- **a -** in direction of rotation of the engine (standard)
- **b -** against direction of rotation of the engine (∗optional)

ENGAGEMENT OF THE FRONT OUTPUT SHAFT ZUIDBERG

The front output shaft Zuidberg can be engaged and disengaged using a switch on the dashboard. Activation of the switch is indicated by the illuminated symbol on the switch.

The switch is fitted with a mechanical lock (1) against unintentional switching on. When activating the switch, depress also the lock (1) in direction of the arrow.

The switch shall be off when starting the engine.

MAXIMUM TRANSFERRED POWER

Output shaft	Transferred power
front (Zuidberg)	
1,000 rpm	45kW*
rear	
1,000 rpm	full engine power
540 rpm	full engine power
540E rpm	full engine power

*In case of a transfer of power without shocks, the value of the transferred power may be increased to 50kW.

PTO DRIVE OF AGRICULTURAL MACHINES

DRIVE OF MACHINES WITH GREATER INERTIAL MASSES

(CRUSHERS, ROTARY HARROW, REAPERS, ETC.)

The propeller shaft for drive of such machines shall be equipped with a so-called free engine clutch that provides disconnection of the transfer of torques with backward effects from the machine to the tractor.

HYDRAULIC SYSTEM

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Adjustable stop	84
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Different functions of outer hydraulic circuit control levers	93
Different functions of outer hydraulic circuit control levers	94
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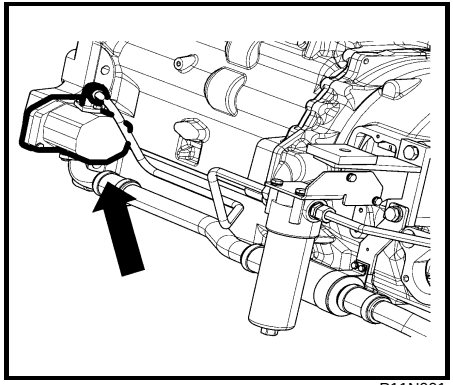
The hydraulic system is intended for lifting and lowering of agricultural machines and implements attached in the rear three point hitch.



P11N001

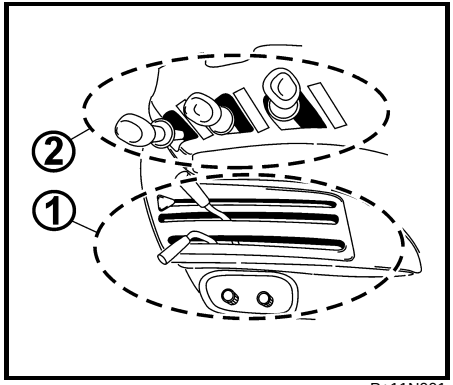
HYDRAULIC SYSTEM

It consists of the inner and outer circuits. Gear pump is the source of pressure oil. Oil is taken from reservoir shared by gearbox and transmission.

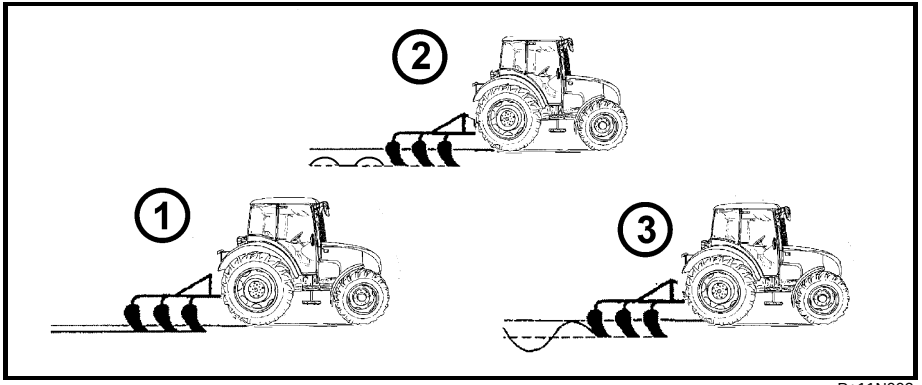
Hydraulic pump cannot be switched off. If the engine is working, the pump is on. The amount supplied is 50 liters per minute.

The pressure in hydraulic system raised by the hydraulic pump is restricted by a safety valve to 19 MPa.

HYDRAULIC SYSTEM



P+11N001



P+11N002

HYDRAULICS CONTROL PANEL

Hydraulics control panel is located in the area of the right wing.

Controlling the rear three-point hitch is enabled by the inner hydraulic circuit (1).

Controlling outer hydraulic circuits (couplers) is enabled by outer hydraulic circuit (2).

WAYS TO REGULATE INNER HYDRAULIC CIRCUIT

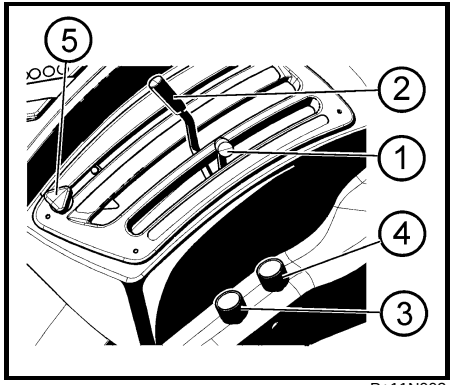
Hydraulic system allows of three ways to regulate the lifting of the rear three-point hitch:

Position regulation (img. 1) – the tool connected to the rear three-point hitch is automatically kept in the same height (position) with regard to the tractor.

Mixed regulation (img. 2) – a combination of position and power regulation. Suitable mainly for tilling areas of different soil resistance.

Power regulation (img. 3) – the tool connected to the three-point hitch is automatically being adjusted depending on changing soil resistance.

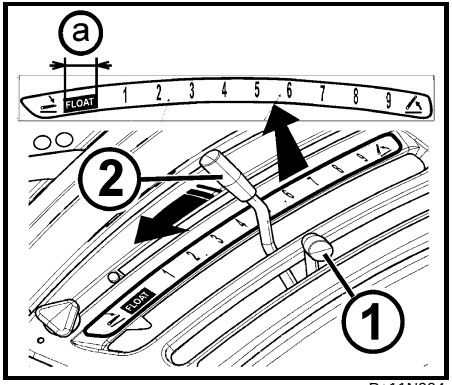
All the regulations can also be used when working with a tool equipped with a support wheel in so-called free (floating) position.



P+11N003

CONTROLLING THE INNER HYDRAULIC CIRCUIT

1. position or power regulation lever
2. lever for selecting floating position, adjusting the height of the three-point hitch in position regulation or mixed regulation.
3. three-point hitch lowering speed control
4. hydraulic system sensitivity control
5. adjustable stop

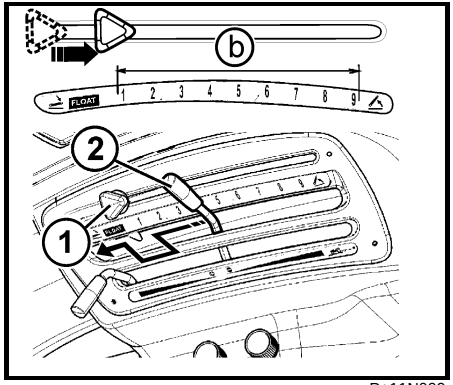


P+11N004

FREE (FLOATING) POSITION

Free (floating) position makes it possible to work with tools with a support wheel. In this position, the arms of the rear three-point hitch are loose.

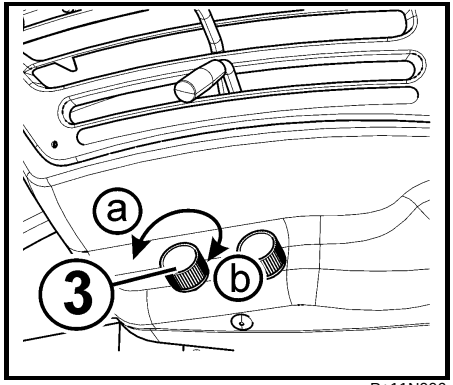
Move lever (2) to the front position (a). The position of lever (1) makes no difference.



P+11N009

ADJUSTABLE STOP

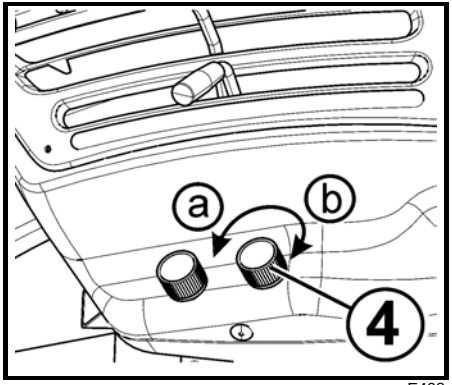
Under default settings, it is recommended to set the adjustable stop (1) to a position on the edge between floating position and the beginning of the range of lifting of the rear three-point hitch (b). After pushing the lever towards you, the lever can be moved over the adjustable stop.



P+11N006

THREE-POINT HITCH LOWERING SPEED CONTROL

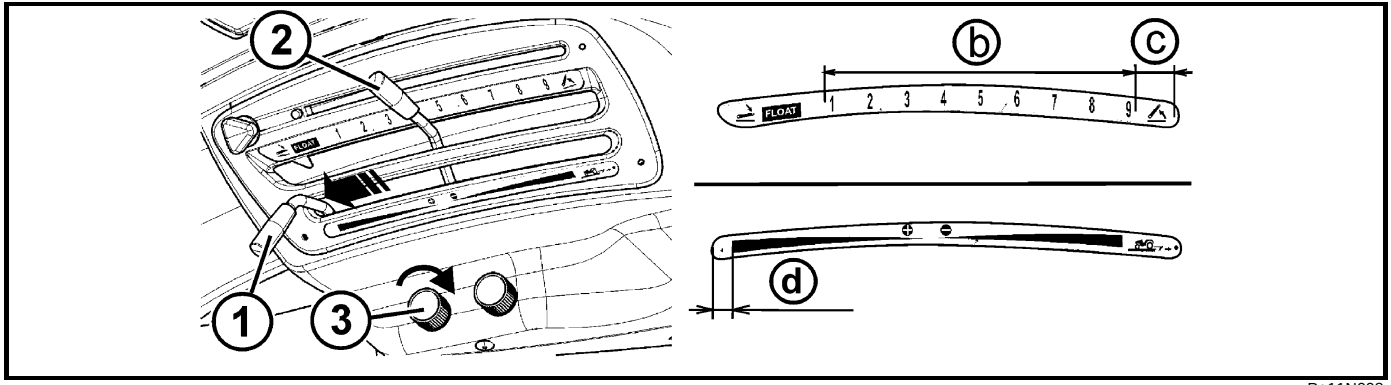
Three-point hitch lowering speed control (3) selects the speed of lowering the arms of the rear three-point hitch. Turning the knob in (b) direction reduces the lowering speed of the arms of the rear three-point hitch, turning it in (a) direction increases the speed. If the knob is turned in (b) direction to its stop point, the arms of the rear three-point hitch cannot be lowered.



E408

HYDRAULIC SYSTEM SENSITIVITY CONTROL

Hydraulic system sensitivity control (4) adjusts the sensitivity of the hydraulics in power or mixed regulation. Turning the knob in (a) direction increases sensitivity, turning it in (b) direction decreases sensitivity.



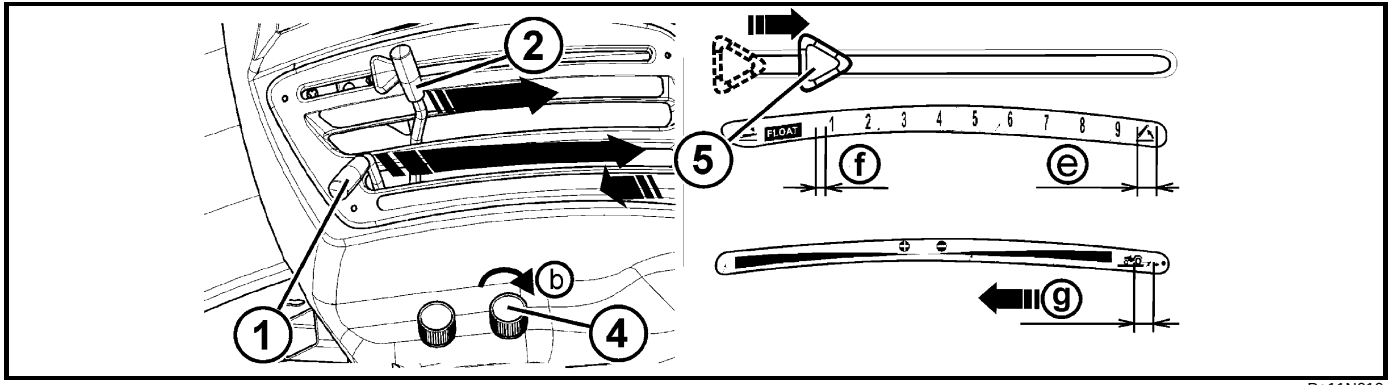
P+11N008

POSITION REGULATION OF THE LIFTING OF THE REAR THREE-POINT HITCH

Position regulation of the lifting of the rear three-point hitch means that the tool connected to the rear three-point hitch is automatically kept in the same height (position) with regard to the tractor.

Move lever (1) to the front position (d). Adjust the height of the rear three-point hitch with tools within the (b) range by lever (2). Adjusting the height is smooth within the range 1-9. In position 1, the arms of the rear three-point hitch are in the lower position, in position 9, in the highest position. Position (c) is a transport position when the tools connected to the rear three-point hitch is raised at maximum.

To transport tools which are connected to the rear three-point hitch always use position regulation.
To raise tools into transport position, turn the three-point hitch lowering speed control knob (3) in the direction shown by the arrow up to the stop point, which results in interrupting the oil flow in hydraulics. Should tools connected to the rear three-point hitch not be lowered, check the position of the speed lowering control knob (3) – turn it in the opposite direction than shown by the arrow.
If tools connected to the rear three-point hitch are long and heavy, the arms of the rear three-point hitch may get locked in the transport position during transport. If the lowering speed control knob (3) is loosened and the tools still cannot be lowered, move lever (2) to the floating position (c) for a short time and immediately get back to the lowering range (d). The arms of the rear three-point hitch start to go down as set by lever (2).



P+11N010

POWER REGULATION OF THE LIFTING OF THE REAR THREE-POINT HITCH

Power regulation of the lifting of the rear three-point hitch means that the tool connected to the rear three-point hitch is automatically being adjusted depending on changing soil resistance.

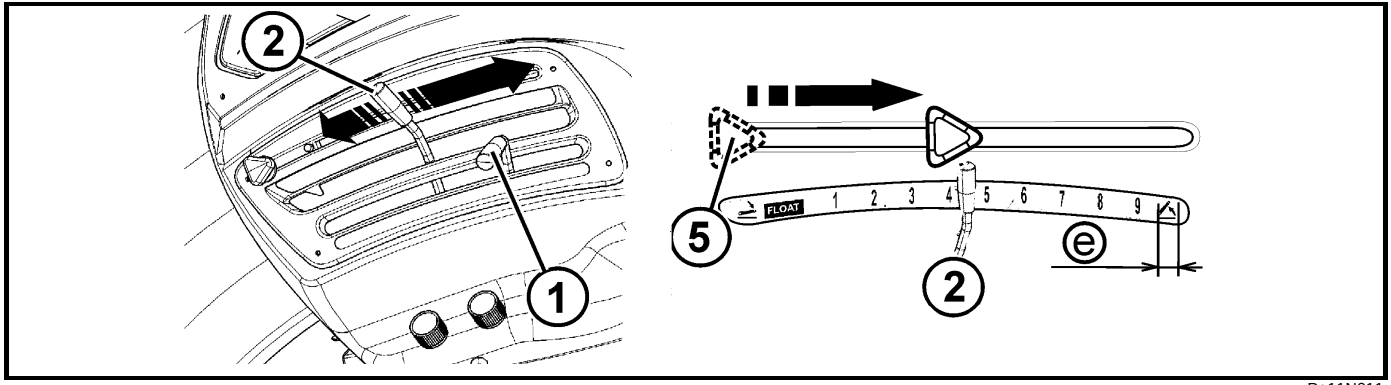
Set the adjustable stop (5) to a position on the edge between floating position and the beginning of the range of lifting of the rear three-point hitch.

Move lever (2) to (f) position – to the adjustable stop (5).

Move lever (1) to (g) position, accelerate the tractor and move lever (1) in the direction shown by the arrow to set the depth of tilling (in (g) position, depth is the lowest).

Once the depth of tilling is set, lever (1) must be kept in constant position. At the end of each row, raise the tool connected to the rear three-point hitch only by moving lever (2) to (e) position. To lower the tool to its operating position again, move lever (2) to (f) position.

The rear three-point hitch may start oscillating under the influence of changing soil resistance. To reduce oscillation, set lower hydraulic system sensitivity by turning the control knob (4) in (b) direction.

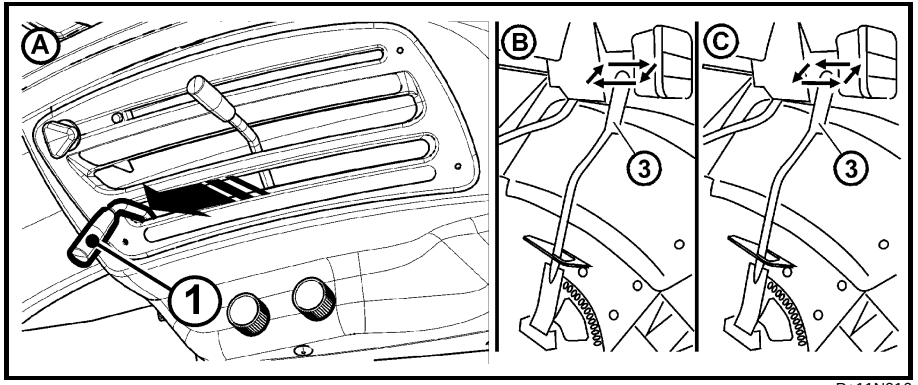


P+11N011

MIXED REGULATION OF LIFTING THE REAR THREE-POINT HITCH

Mixed regulation of lifting the rear three-point hitch means that the tool connected to the rear three-point hitch is automatically being adjusted depending on changing soil resistance and at the same time it prevents any increase in depth of tilling in case of smaller soil resistance.

Set the depth of tilling by lever (1) as described in “Power regulation of the lifting of the rear three-point hitch“. Then start moving lever (2) in the direction shown by the arrow until the arms of the rear three-point hitch start to rise slightly. Herewith, mixed regulation has been set. Move the adjustable stop (5) to lever (2) which has been set and lock it. At the end of each row, raise the tool connected to the rear three-point hitch only by moving lever (2) to (e) position. To lower the tool to its operating position again, move lever (2) to the preset stop.



P+11N016

EXTERIOR REAR HYDRAULIC ARMS CONTROLS

Exterior rear hydraulic arms controls are located on the rear right wing. They make it easier for the operator to conncet tools by controlling the movements of the lower drawbars of the three-point hitch from the outside. They only serve for connceting and disconnecting the tools.

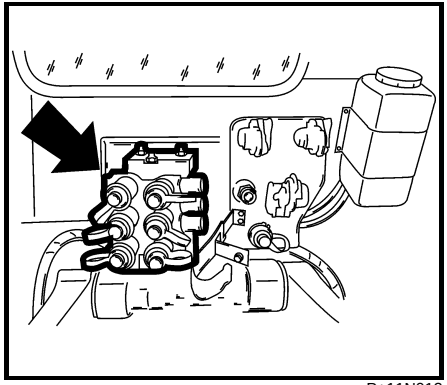
Img. (A)

Before using exterior controls, move the power regulation lever (1) to its utmost position.

Lowering hydraulic arms img. (B):
Move lever (3) in the direction shown by the arrows (moving the lever is restricted with a link). By repeating this procedure, hydraulic arms are lowered in small steps.

Raising hydraulic arms img. (C):
Move lever (3) in the direction shown by the arrows (moving the lever is restricted with a link). By repeating this procedure, hydraulic arms are raised in small steps.

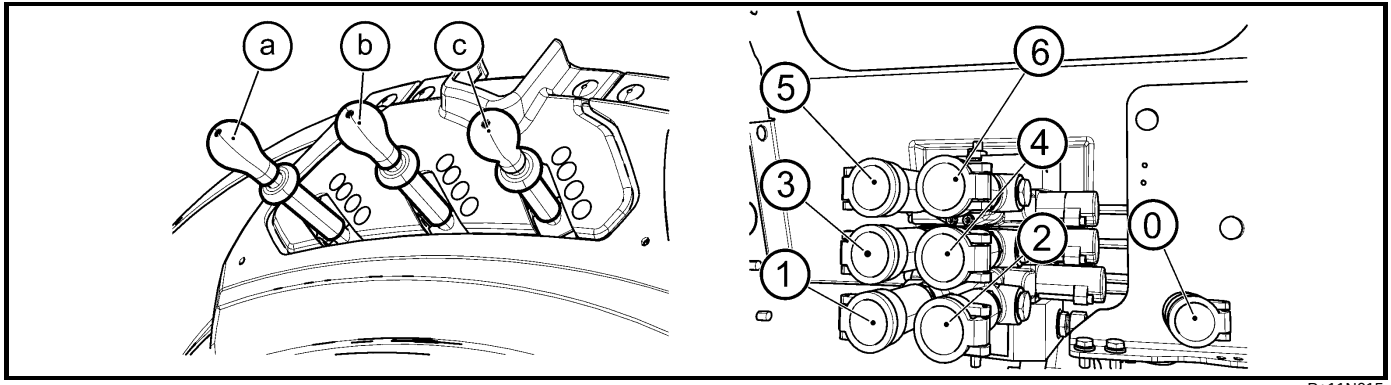
If the lifting device controlled by exterior controls is loaded, movement of the lower drawbars within one step (on the exterior controls) is longer than if unloaded.



P+11N012

OUTER HYDRAULIC CIRCUIT

It supplies pressure oil for hydraulic devices on outer drives of hydraulics ended with couplers. Coupler sockets with 12.5 mm bore are in accordance with the international recommendation of ISO.



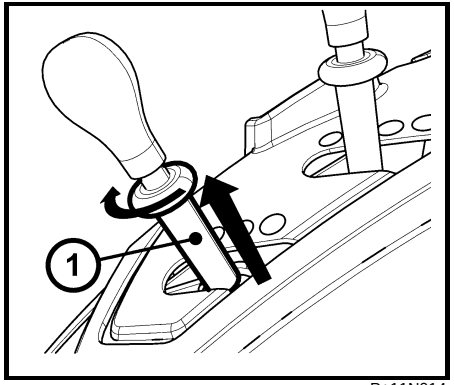
P+11N015

OUTER HYDRAULIC CIRCUIT CONTROLS

Outer hydraulic circuit controls are located on the right wing.
lever (a) controls the lower section of distributor – quick couplers (1) and (2)
lever (b) controls the central section of distributor – quick couplers (3) and (4)
lever (c) controls the upper section of distributor – quick couplers (5) and (6)
Quick coupler (0) is directly connected with transmission and it is supposed for recuperative oil of exterior hydraulic appliances (e.g. from rotary hydraulic engines etc.).

According to the equipment of the tractor, the following combinations of control levers and quick couplers can be supplied:
lever (a) – quick couplers (1) and (2)
levers (a) and (b) – quick couplers (1), (2), (3) and (4)
levers (a),(b) and (c) – quick couplers (1), (2), (3), (4), (5) and (6)
Quick coupler (0) is supplied in any case.

If the tractor is equipped with front three-point hitch, use lever (b) to control it. When the front three-point hitch is used, quick couplers cannot be connected as they are pressured together with the front three-point hitch! When you finish using the front three-point hitch and want to use the section with quick couplers 3 and 4 with connection to the front three-point hitch, raise the arms of the front three-point hitch to the transport position and move the front three-point hitch lever to the „locked" position.



P+11N014

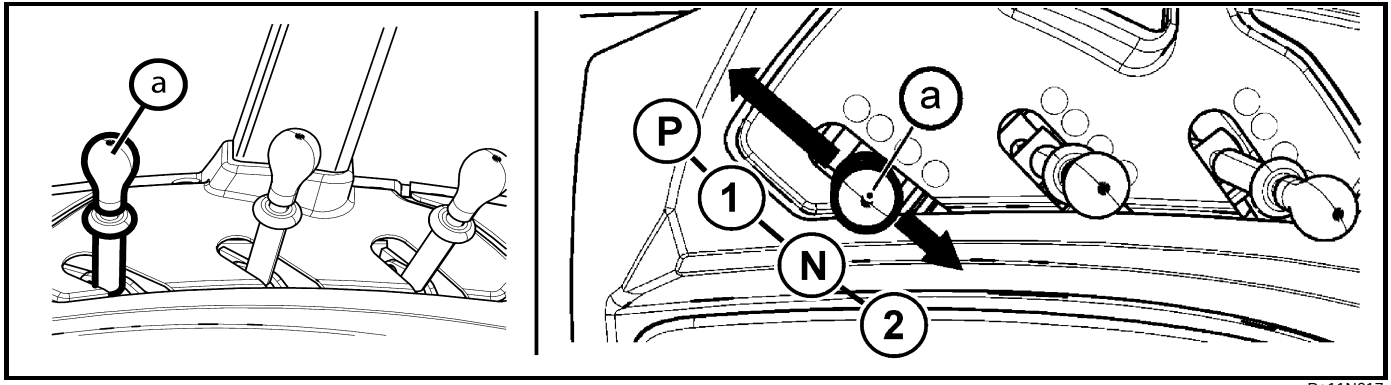
LOCKING CONTROL LEVERS

Outer hydraulic circuit control levers are locked in neutral (N) position.

To unlock them, raise the lock control (1) and turn it to a stop point in the direction shown by the arrow.

To lock them again, move the levers to neutral (N) position and turn the lock control in the opposite direction than shown by the arrow to a stop point and push the control down. This locks the lever in neutral position.

For safety reasons, always lock outer hydraulic circuit levers in neutral position (N).

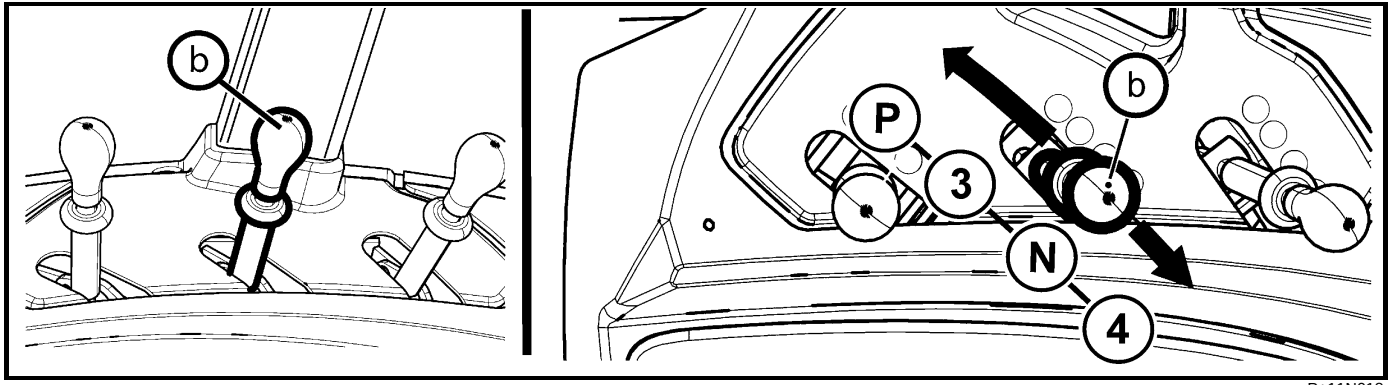


P+11N017

DIFFERENT FUNCTIONS OF OUTER HYDRAULIC CIRCUIT CONTROL LEVERS

There are four positions of the lever (a):

- **N** - Neutral position. Quick coupler drives (1) and (2) are closed and oil in the hydraulic appliance connected is blocked. Lever (a) is locked in this position.
- **1** - Pressure in quick coupler (1). Quick coupler (2) is connected with the drain. Lever (a) is locked in this position. In case pressure exceeds 16.5 MPa when connected to quick coupler (1), lever (a) automatically returns to (N) position – „kick-out" function.
- **2** - Pressure in quick coupler (2). Quick coupler (1) is connected with the drain. Lever (a) is locked in this position. In case pressure exceeds 16.5 MPa when connected to quick coupler (2), lever (a) automatically returns to (N) position – „kick-out" function.
- **P** - Floating position. Both quick couplers (1) and (2) are connected with the drain and oil is free to flow in both directions. Lever (a) is locked in this position.

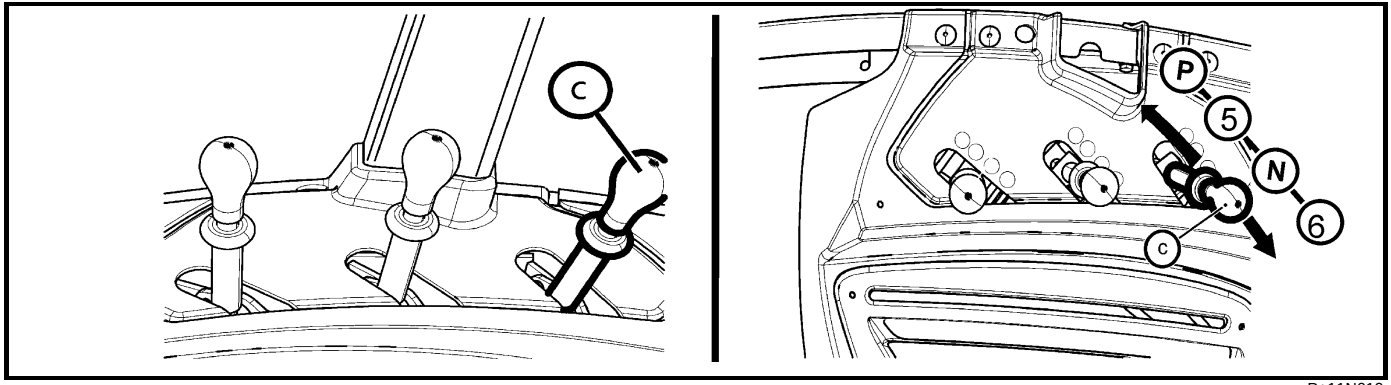


P+11N018

DIFFERENT FUNCTIONS OF OUTER HYDRAULIC CIRCUIT CONTROL LEVERS

There are four positions of the lever (b):

- **N** - Neutral position. Quick coupler drives (3) and (4) are closed and oil in the hydraulic appliance connected is blocked. Lever (b) is locked in this position.
- **3** - Pressure in quick coupler (3). Quick coupler (4) is connected with the drain. It is necessary to hold lever (b) in this position, when released, lever (b) automatically returns to (N) position. In addition, quick coupler (3) is equipped with a one-way valve – convenient for connecting a tool which requires higher degree of impermeability – minimum lowering of the tool during transport.
- **4** - Pressure in quick coupler (4). Quick coupler (3) is connected with the drain. Lever (b) is locked in this position.
- **P** - Floating position. Both quick couplers (3) and (4) are connected with the drain and oil is free to flow in both directions. Lever (b) is locked in this position.

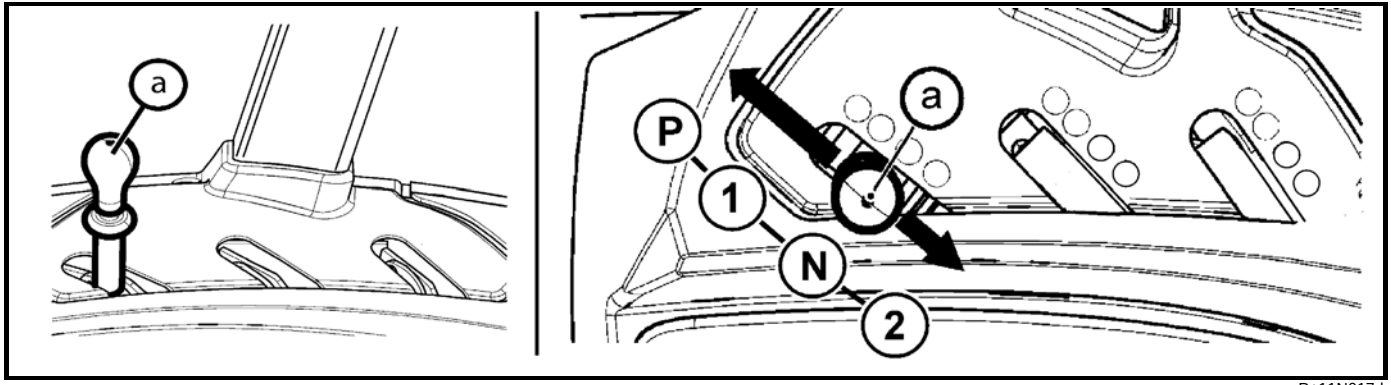


P+11N019

DIFFERENT FUNCTIONS OF OUTER HYDRAULIC CIRCUIT CONTROL LEVERS

There are four positions of the lever (b) which controls quick couplers (5) and (6):

- **N** - Neutral position. Quick coupler drives (5) and (6) are closed and oil in the hydraulic appliance connected is blocked. Lever (c) is locked in this position.
- **5** - Pressure in quick coupler (5). Quick coupler (6) is connected with the drain. It is necessary to hold lever (c) in this position, when released, lever (c) automatically returns to (N) position. In addition, quick coupler (5) is equipped with a one-way valve – convenient for connecting a tool which requires higher degree of impermeability – minimum lowering of the tool during transport.
- **6** - Pressure in quick coupler (6). Quick coupler (5) is connected with the drain. Lever (c) is locked in this position.
- **P** - Floating position. Both quick couplers (5) and (6) are connected with the drain and oil is free to flow in both directions. Lever (c) is locked in this position.

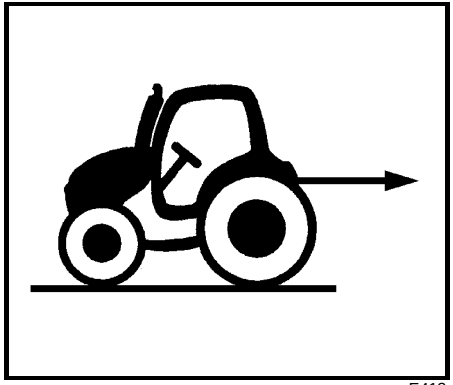


P+11N017d

DIFFERENT FUNCTIONS OF OUTER HYDRAULIC CIRCUIT CONTROL LEVERS- ONE SECTION DISTRIBUTOR

There are four positions of the lever (a):

- **N** - Neutral position. Quick coupler drives (1) and (2) are closed and oil in the hydraulic appliance connected is blocked. Lever (a) is locked in this position.
- **1** - Pressure in quick coupler (1). Quick coupler (2) is connected with the drain.
- **2** - Pressure in quick coupler (2). Quick coupler (1) is connected with the drain. Lever (a) is locked in this position.
- **P** - Floating position. Both quick couplers (1) and (2) are connected with the drain and oil is free to flow in both directions. Lever (a) is locked in this position.



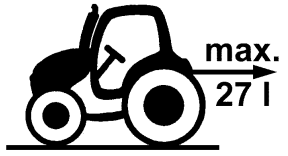
E413

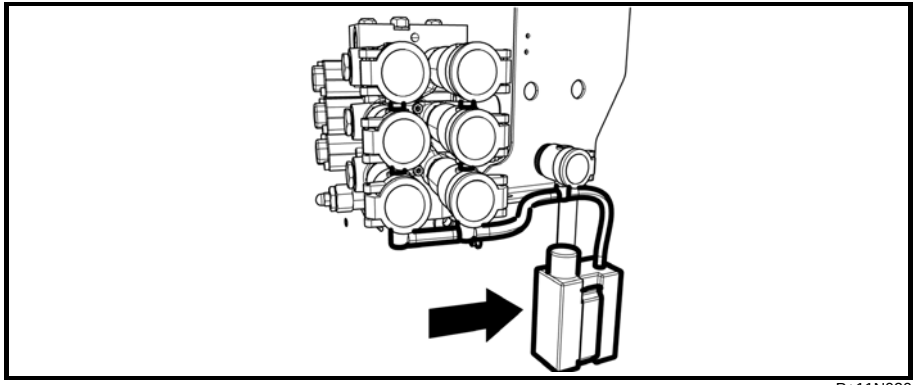
AMOUNT OF OIL TAKEN FROM OUTER HYDRAULIC DRIVES

For maximum amount of oil taken see the following table.

If the amount taken exceeds the limit, hydraulic pump can absorb air and can get damaged.

If the amount of oil in transmission decreases after disconnecting the tool due to its permanent outflow out of the tractor into the machine's hydraulic circuit, refill the oil missing.

	Working area: in flat terrain ***Max. amount of oil taken:*** 20 liters ***Gearbox filling:*** standard filling
	Working area: in a slope ***Max. amount of oil taken :*** 13 liters ***Gearbox filling :*** standard filling
	***Working area :*** in flat terrain ***Max. amount of oil taken :*** 27 liters ***Gearbox filling :*** gearbox oil filling increased by 7 liters (max. amount of oil in gearbox allowed)
	Working area : in a slope ***Max. amount of oil taken :*** 20 liters ***Gearbox filling :*** gearbox oil filling increased by 7 liters (max. amount of oil in gearbox allowed)



P+11N020

***QUICK COUPLERS WITH DRIPPING OIL RESERVOIR**

On request, dripping system for holding leakage oil can be installed. Check the reservoir regularly; if it is full, empty it ecologically.

CONNECTING AND DISCONNECTING QUICK COUPLERS

When connecting or disconnecting quick couplers, be careful about leakage oil which rests on the coupler socket.

To behave ecologically, remove the leakage oil each time after disconnecting the couplers with a textile cloth.

CONNECTING MACHINERY AND TOOLS TO OUTER HYDRAULIC CIRCUIT

Connecting a double acting cylinder

A double acting cylinder must always be connected to quick couplers of one section.

Connecting machinery and tools assembled from more parts

When working with agriculture machinery which is assembled from more parts (combinators, scrubbers, or harrows) where the edge frame is hinged to the central frame because it is diagonally folded during transport by independent hydraulic cylinders which are controlled by outer hydraulic circuit of the tractor, it is recommended to connect the lifting arms of the cylinders to quick couplers (3) and (5) which are equipped with a one-way valve.

Connecting rotary hydraulic engine

If a hydraulic engine is connected to outer hydraulic drive, it is always necessary to connect its returnable arm to quick coupler (0). Filling (pressure) arm can be connected to quick couplers (1) or (2), where the hydraulic engine is protected by the “kick-out” function from overload. This function stops the hydraulic engine if pressure in the filling arm exceeds 17 MPa.

Connecting reverse rotary hydraulic engine

Due to its function, reverse rotary hydraulic engine must be connected to quick couplers of one section. It is recommended to use quick couplers (1) and (2), where the hydraulic engine is protected by the “kick-out” function from overload. This function stops the hydraulic engine if pressure in the filling arm exceeds 17 MPa. If the hydraulic engine is connected to quick couplers of different sections, both arms must be equipped with safety valves which can be relied on to restrict high pressure peaks during run-out. Connect the safety valves drain to quick coupler (0).

Connecting external hydraulic distributor

It is recommend to connect external hydraulic distributor to quick couplers (4) or (6). Control levers (b) and (c) are mechanically locked in these positions without hydraulic lock.

Connectable machinery which makes use of oil in outer hydraulic circuit must be filled with the same kind of oil as recommended for tractor gearbox!
Quick coupler sockets of connectable machinery must be cleaned properly before connecting.

HITCHES

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Upper pull rod	102
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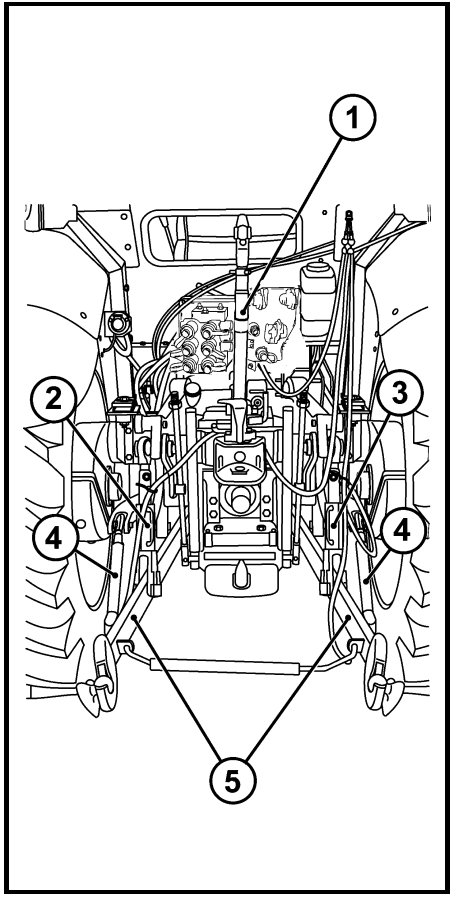
Drive with farming mechanisms attached to the front three-point hitch	106

HITCHES



P11NE451

REAR THREE-POINT HITCH

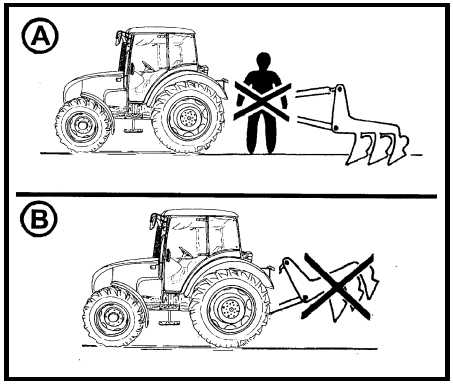
It is designed for coupling of carried or semi-carried farming mechanisms and implements with hitch points of category I or II according to ISO.

The categories differ in the length of the hitch axis, i.e. distance of centres of balls of lower hitch joints with attached implements.

Category I.	
Length of hitch axis	728mm
∅ of holes of coupling balls of lower pull rods acc. to ISO	28mm
∅ of the upper pull rod hole	25mm

Category II.	
Length of hitch axis	870mm
∅ of holes of coupling balls of lower pull rods acc. to ISO	28mm
∅ of the upper pull rod hole	25mm

1. Upper pull rod
2. Left lifting pull rod
3. Right lifting pull rod
4. Limiting pull rods
5. Lower pull rods



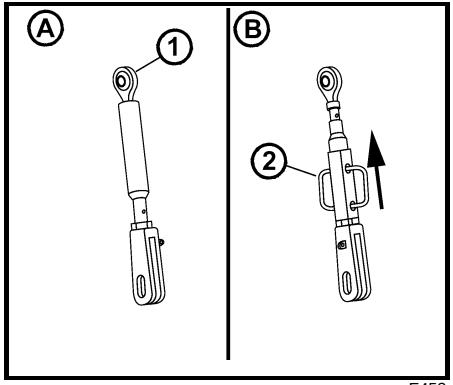
G452

SAFETY PRINCIPLES WITH WORK WITH A THREE-POINT HITCH

The persons not charged with work with an implement to the tractor may not stay between the tractor and hitched mechanism (implement) - (A).

Do not park the tractor with hitched implement in lifted position (B).

When driving without any implement it is necessary to couple lower pull rods (5) using springs and set the upper pull rod (1) into the flexible hitch! For transport of an implement the limiting pull rods (4) shall be adjusted to prevent any undesired side movements of the implement!



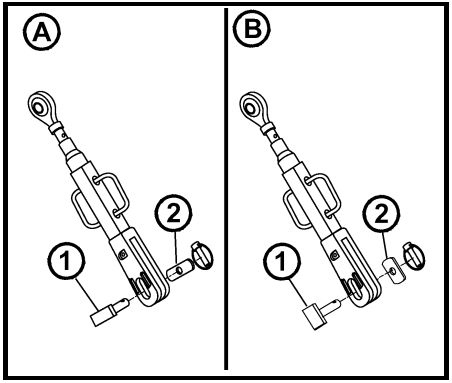
E453

HEIGHT ADJUSTMENT OF LIFTING PULL RODS

Lifting pull rod see fig. (A):
Perform adjustment by turning of the eye (1) after disconnection of the upper end of the lifting pull rod.

Lifting pull rod see fig. (B):
Pull out the arm cross (2) in direction of the arrow and perform adjustment by turning of the arm cross.

According to equipment of the tractor both pull rods can be arranged as shown on fig. (B)

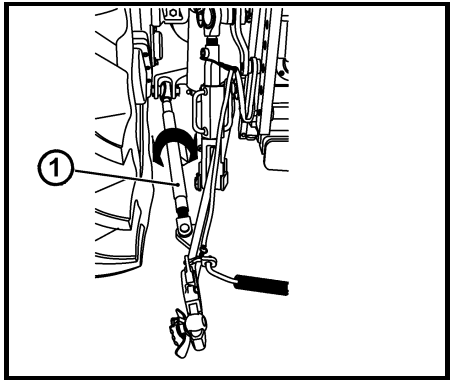


E454

FIXED AND FREE POSITION OF LOWER HYDRAULIC PULL RODS

Fixed position of lower hydraulic pull rods see fig. (A):
The pin head (1) and washer (2) are mounted horizontally.

Free position of lower hydraulic pull rods see fig.(B):
The pin head (1) and washer (2) are mounted vertically.
Free position allows free coupling of the tractor and implement. Both ends of the pull rods may move freely each other in this case.

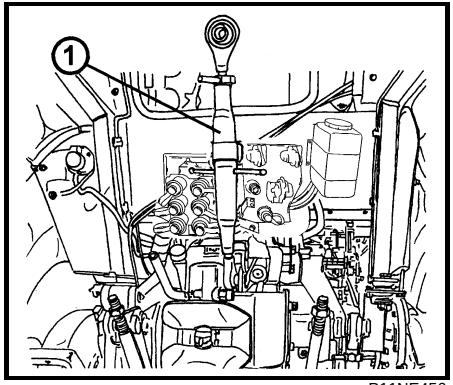


E455

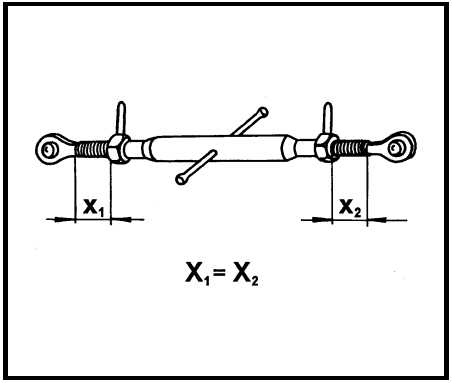
LIMITING PULL RODS

The limiting pull rods (1) allow side swings of the lower pull rods.
The left and right limiting pull rods can be adjusted by turning of the pull rod pipe, see the arrow.

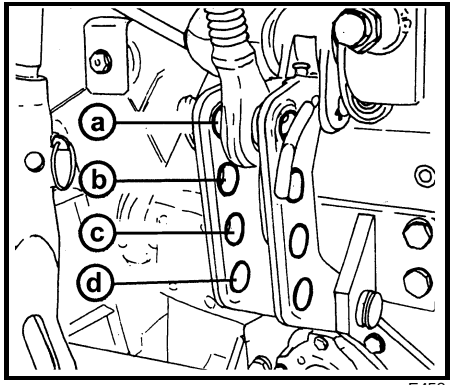
Both limiting pull rods shall always be mounted on the tractor.



P11NE456



E457



E458

UPPER PULL ROD

Length of the upper pull rod (1) is adjustable. The pull rod can be connected to the tractor to one of four holes in the bracket that transfers forces from the hitched implement to the torsion rod in the cover of the hydraulics regulation.

When transporting an implement it is necessary to reposition the upper pull rod to the hole “d“ to prevent overloading of the lifting hydraulics kinematic systém or fall of the hitched mechanism.

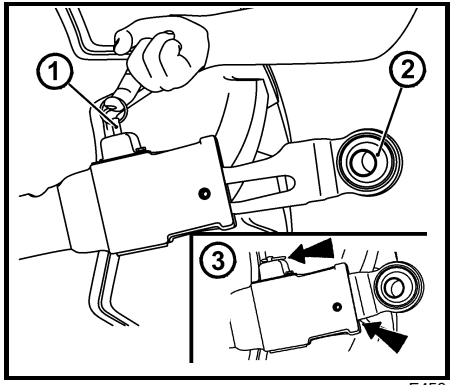
UPPER PULL ROD

When extending the upper pull rod it is necessary to pay attention that both joints are screwed out from the pull rod pipe in the same length.

SELECTION OF HOLES IN THE BRACKET

Connection of the upper pull rod to some of the holes "a" to "d" of the bracket influences:

- Sensitivity of hydraulics regulation (selection lever of the system in position "D" or "M"). Sensitivity is highest when the pull rod is connected to the hole "a".

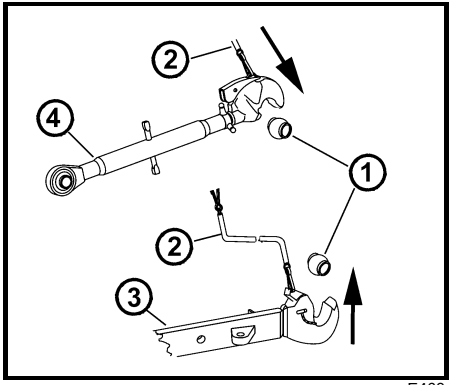


E459

*LOWER PULL BARS WITH EXTENSIBLE TERMINALS

The lower pull bars of the hitch are provided with semi-automatic extensible terminals CBM. These terminals facilitate coupling of the implement to the tractor. After pulling out the locking pins (1) push out the terminals (2). The pushed out terminals can be then attached to the fixing pins of the carried implement.
After attaching the carried implement release the hydraulic arms. By lowering them and reversing the tractor the terminals (2) slide into the pull bars and lock themselves automatically in the working position using the locking pins (1).

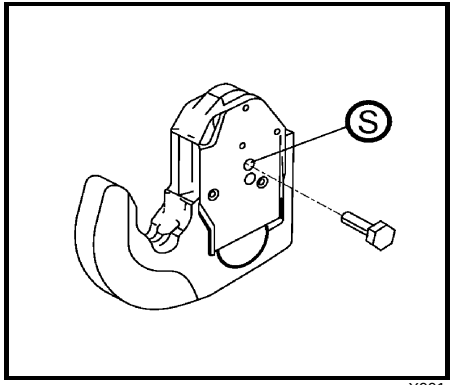
Check always position of extensible terminals and locking pins, see fig. (3).



E460

*LOWER PULL BARS WITH HOOKS CBM

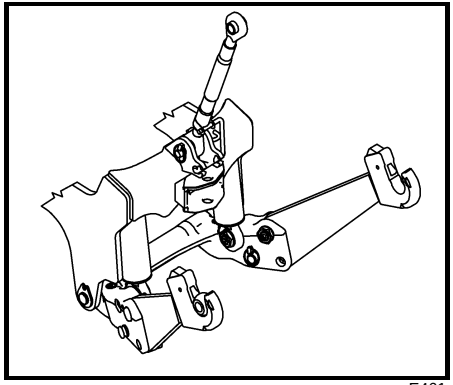
The lower (3) and upper (4) pull bars of the hitch are provided with hooks CBM.
First the implement shall be completed with hitch balls CBM (1) and adjust the distance between lower pull bars of the hitch (3) using the limiting pull bars.
By reversing of the tractor and slight lifting of the three-point hitch its lower pull bars (3) are connected to the implement and the upper pull bar (4) of the three-point hitch is then connected by the driver from the cabin.
When uncoupling the implement, unlock the hooks, lift the upper pull bar (4) using the control stranded wires and disconnect the lower pull bars (3) by lowering of the three-point hitch.



X901

BLOCKING OF LOWER LINKAGES WITH CBM HOOKS

For very difficult working conditions (aggregation with heavy machines on slopes or aggregation with side loaded machines) we recommend to lock the lower linkage hook by inserting of a M8 bolt to the orifice (S) and blocking of the bolt with a nut.



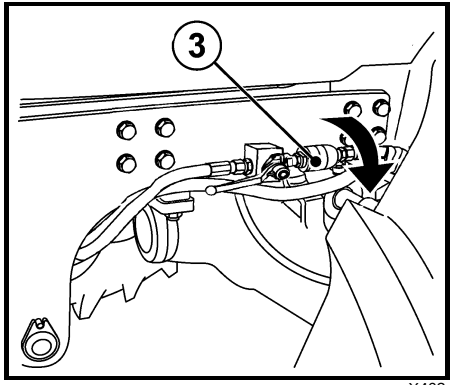
E461

∗FRONT THREE-POINT HITCH

It is designed for coupling of front-carried faming mechanisms and implement of category II according to ISO.

When transporting a carried implement it is always necessary to secure the hitch lifted position hydraulically using the valves that are located on the left side of the tractor above the front axle.

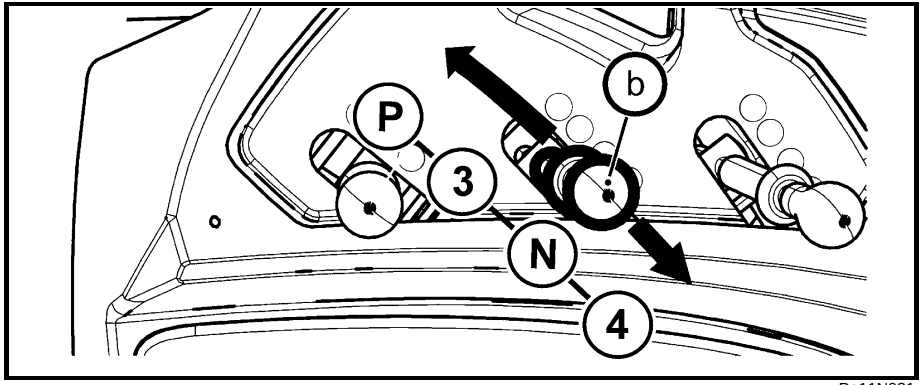
This hydraulic locking is recommended even in case that there is not coupled any mechanism to the three-point hitch.



X463

ADJUSTMENT OF LIFTING SPEED OF THE FRONT THREE-POINT HITCH

Before commencement of work with the implement attached to the front three-point hitch it is recommended to adjust the throttling valve (3) so that the time necessary to lower the implement from the highest to the lowest position is 1 to 1.5 second. Rotation of the valve body counterclockwise (in direction of the arrow) the lowering speed increases. During adjustment the front hitch valve levers shall be in horizontal position.



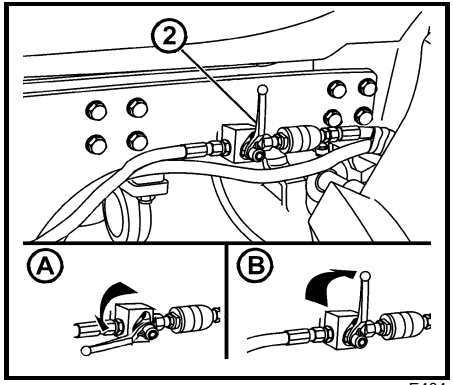
P+11N021

CONTROLLING FRONT THREE-POINT HITCH

The hitch is equipped with two single acting hydraulic cylinders which are supplied with oil from an additional hydraulic distributor. To lift or lower, use lever (b) of the additional distributor.

3 position	lifting
4 position	lowering
N position	locking the hitch
P position	not to be used

If the tractor is equipped with front three-point hitch, use lever (b) to control it. When the front three-point hitch is used, quick couplers cannot be connected as they are pressured together with the front three-point hitch! When you finish using the front three-point hitch and want to use the section with quick couplers 3 and 4 with connection to the front three-point hitch, raise the arms of the front three-point hitch to the transport position and move the front three-point hitch lever to the „locked" position.



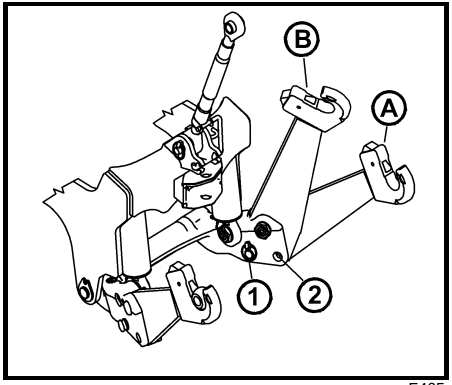
E464

HYDRAULIC LOCKING OF THE FRONT THREE-POINT HITCH

Hydraulic locking of the front three-point hitch can be carried out in any position of the hydraulic cylinders using valves installed in the front part of the tractor (2).

A Free position
The valve levers are in horizontal position
- The hitch can be controlled from the cabin

B Locked position
The valve levers are in vertical position
- The hitch is locked



F465

WORKING AND TRANSPORT POSITIONS OF THE FRONT THREE-POINT HITCH

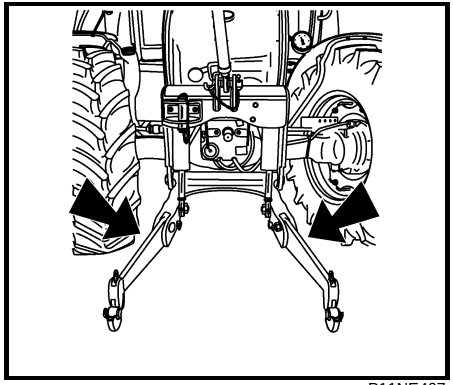
A Working position of the front three-point hitch

B Transport position of the front three-point hitch

Change of position of the pull bars of the front three-point hitch:

1. Unlock and remove the pin (1) from the hole.
2. Lift the arm from position (A) to position (B).
3. Lock the arm by inserting the pin to the hole (2) and then lock the pin.

Insert only pin to the hole; never check its clearness by fingers!



P11NE467

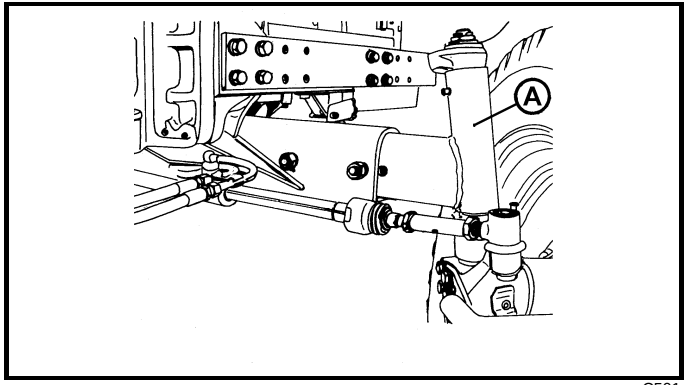
DRIVE WITH FARMING MECHANISMS ATTACHED TO THE FRONT THREE-POINT HITCH

When driving a tractor farming mechanisms attached to the front three-point hitch, the maximum permitted speed is 15 km.h^{-1}.
In case that there is not coupled any mechanism or weight to the front three-point hitch, it is recommended to lift the lower lifting pull bars to their transport position.

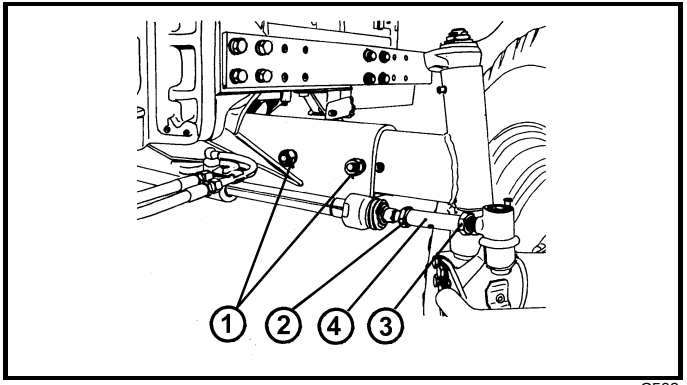
WHEEL TREAD CHANGE

	Page
Change of the front wheel tread at front non-driven axle	108
Setting the front axle knees (extensions)	108
Change of the front wheel tread at front driving axle	109
Setting the stops at front driving axle	110
Front wheel toe-in	111
Setting the wheel toe-in at tractors without front driving axle	112
Setting the wheel toe-in at tractors with front driving axle	113
Fenders of front driving axle	113
Change of rear wheel tread	114

WHEEL TREAD CHANGE



C501



C502

CHANGE OF THE FRONT WHEEL TREAD AT FRONT NON-DRIVEN AXLE

Tread change is provided by sliding out and in the front axle knees (extensions) (A) when front axle is lifted and corresponding setting of adjusting elements is made.

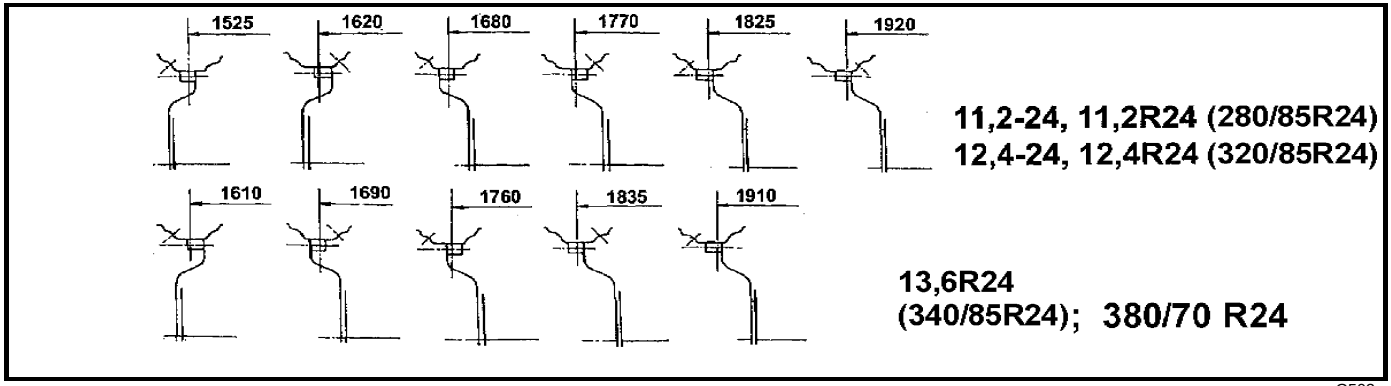
Used tires	Adjustable tread (mm)
6,00-16	1600,1900
6,50-16	1600,1900
7,50-16	1495, 1570, 1870
7,50-20	1495, 1570, 1870
9,00-16	1495, 1570, 1870

SETTING THE FRONT AXLE KNEES (EXTENSIONS)

First of all fix the tractor against movement, lift the axle by lifting jack and support it.

- Thread out axle knee nuts and remove the screws (1).
- Loosen the lock nuts of ball joints (2) and ball joint heads (3) and thread out the both steering rods (4).
- Slide out (or in) the knees to the required tread, reassemble the axle screws. Tighten axle knee nuts by torque 177 - 196 Nm.
- First of all fix the tractor against movement, lift the axle by lifting jack and support it.
- Thread in the steering rods (4) with marked tread (they are supplied as option), make setting of toe-in and secure it with securing nuts (2,3).
- Tighten the nuts by torque 122 - 136 Nm.

WHEEL TREAD CHANGE



G503a

CHANGE OF THE FRONT WHEEL TREAD AT FRONT DRIVING AXLE

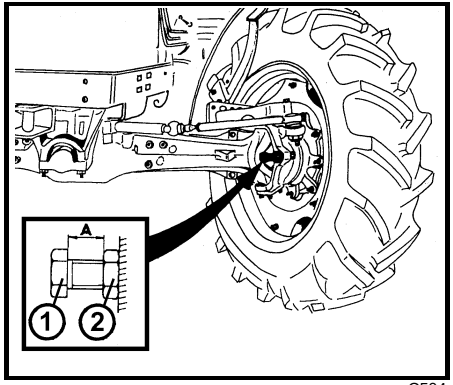
Tread change is provided by changing of rim and disc position.

Used tires	Adjustable treads (mm)
11,2-24, 11,2R24, 12,4-24, 12,4R24	1525, 1620, 1680, 1770, 1825, 1920
13,6R24	1610, 1690, 1760, 1835, 1910

First of all fix the tractor against movement, lift the axle by lifting jack and support it.

- Dismantle the front wheels.
- Thread out the nuts connecting the disc with the rim and remove the screws.
- Make change of tread by setting the rim into required position.
- Reassemble the screws with washers and secure with nuts.
- Tighten the nuts by torque 200 - 220 Nm.
- Tighten the front wheel nuts by torque 270 - 300 Nm.
- Retighten screws to the prescribed level after each loosening of rim connection.
- Retighten connections again to the prescribed torque after driving the distance 100 m with unloaded tractor.
- Retighten connections after 3 hours of operation with loaded tractor.
- Check again tightening of disc nuts and rim footings after 10 hours of operation.

WHEEL TREAD CHANGE



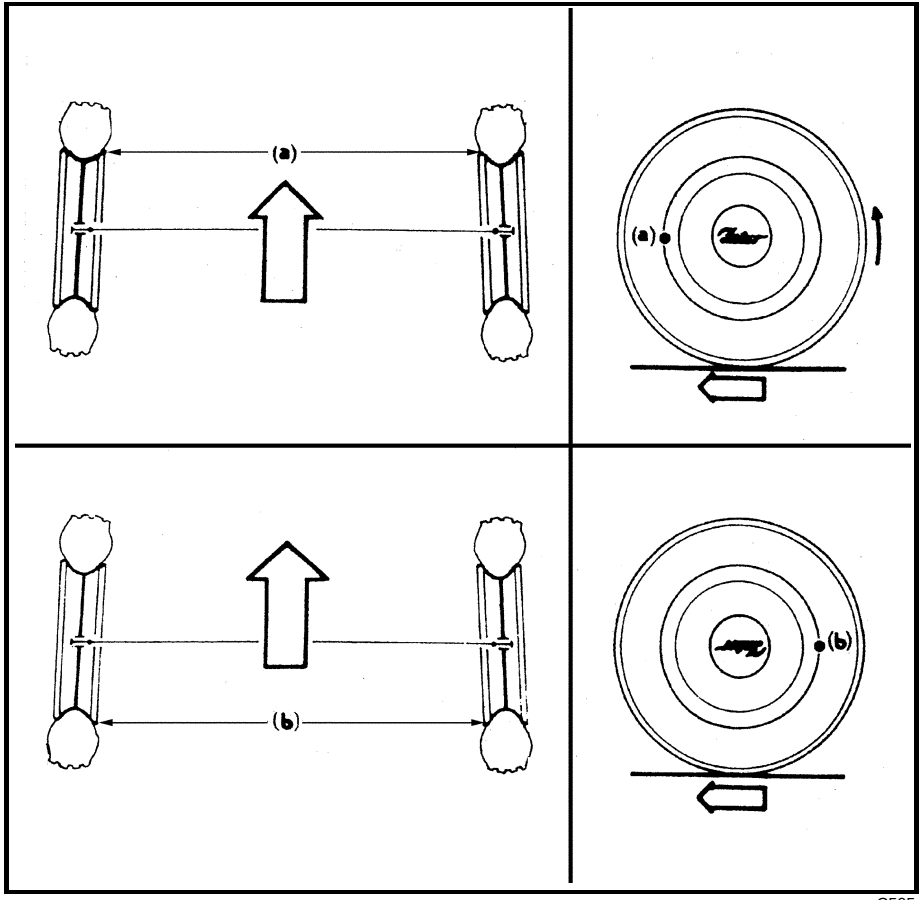
C504

SETTING THE STOPS AT FRONT DRIVING AXLE

Set stops at each change of front wheel tread of the driving front axle according to the mentioned tables after loosening the nut “2” and treading out or in the screw “1” at value “A“.

Tire	11,2-24	12,4-24	13,6R24
Treads	A (mm)	A (mm)	A (mm)
1525	60	61	
1610			59
1620	46	55	
1680		47	
1690			50
1760			43
1770		39	
1825		32	
1835			34
1910			27
1920		27	

WHEEL TREAD CHANGE



C505

FRONT WHEEL TOE-IN

Value of front wheel toe-in measured at the rim at the tractor:

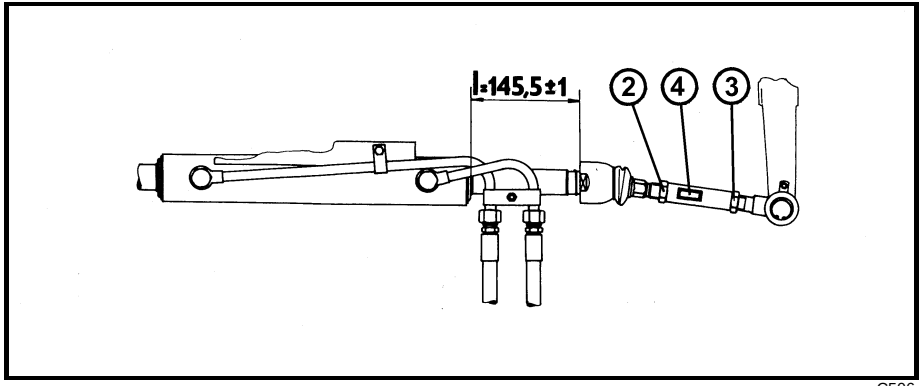
- **with non-driven axle 2 to 6 mm**
- **with driving axle 0 to 4 mm**

Toe-in „**S**“ is determined by the difference of measured values: **S = b - a**.

Before toe-in checking it is necessary to check and eventually adjust the play of front wheel bearings and inflate the front tires to the prescribed pressure.

Front wheel toe-in measurement is executed on rims of wheels.

WHEEL TREAD CHANGE



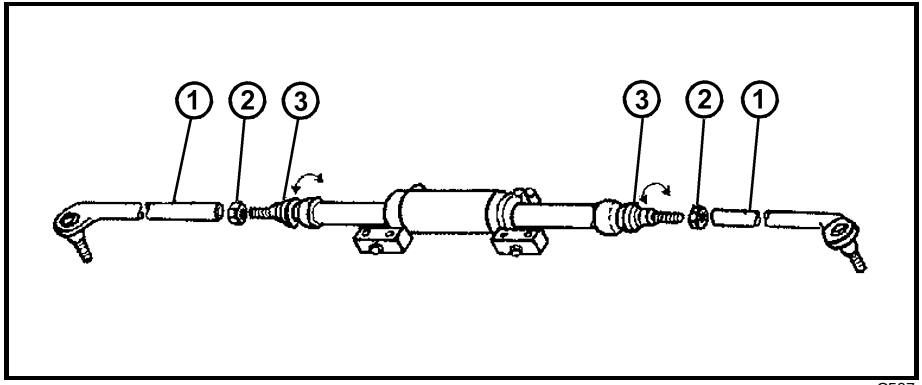
C506

SETTING THE WHEEL TOE-IN AT TRACTORS WITHOUT FRONT DRIVING AXLE

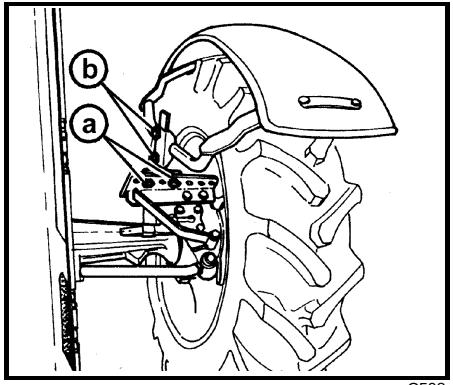
Note: As standard, the tractors are provided with hydrostatic steering.

- Set the wheels symmetrically with the longitudinal axis of tractor.
- In the front in horizontal plane of wheel axes measure the distance between rims. Mark the measuring point.
- Drive the tractor so that the marked points would be in the rear in horizontal plane of wheel axes (turning by 180°) and again measure the distance between the marked points.
- Shift out the piston rod of the cylinder at 145,5 $\pm$ 1.
- Loosen the nuts (2,3) and by turning the rod (4) adjust the toe-in at the required value (measure at the rime side).
- Tighten the lock nuts of the heads of ball joints by torque 122 - 136 Nm. Upper surfaces of heads must be parallel.

WHEEL TREAD CHANGE



C507



C508

SETTING THE WHEEL TOE-IN AT TRACTORS WITH FRONT DRIVING AXLE

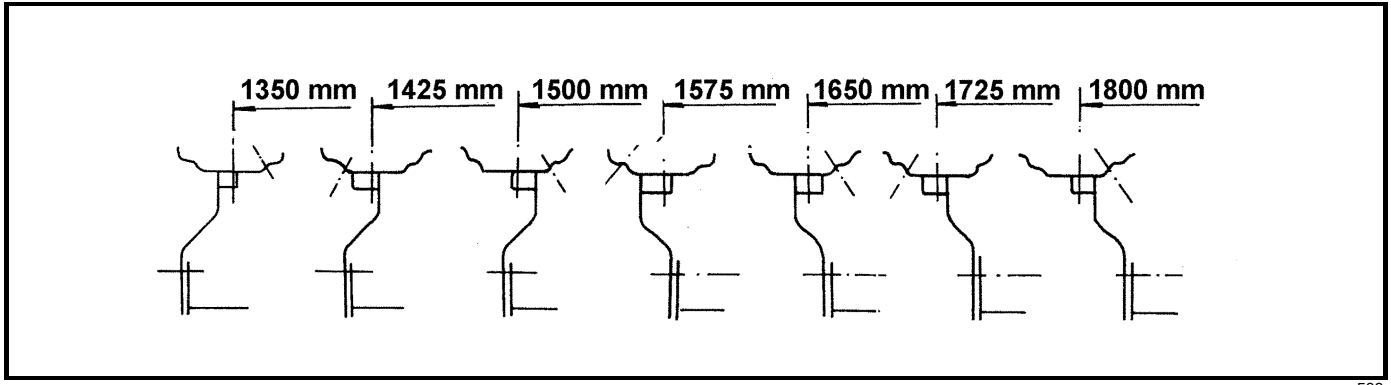
Note: As standard, the tractors are provided with hydrostatic steering.

- Set the wheels symmetrically with the longitudinal axis of tractor.
- In the front in horizontal plane of wheel axes measure the distance between rims. Mark the measuring point.
- Drive the tractor so that the marked points would be in the rear in horizontal plane of wheel axes (turning by 180°) and again measure the distance between the marked points.
- Loosen the lock nuts of the heads of ball joints (2) of the connecting steering rods at the hydraulic cylinder.
- By turning the rod of the ball joint (3) adjust the toe-in. Execute the adjusting symmetrically at the both balls, so that the same turning radius at the both sides could be preserved (measure at the rim sides).
- Tighten the lock nuts of the heads of ball joints (2) by torque 122 - 136 N. Upper surfaces of heads (1) must be parallel.

FENDERS OF FRONT DRIVING AXLE

Fenders of front driving axle are fitted on adjustable holders that could be laterally (by displacement of the screws (a) into other holes) and considering height (by displacement of the screws (b) into other holes) adjusted according to the required tread values and sort of used tires.

WHEEL TREAD CHANGE



509

CHANGE OF REAR WHEEL TREAD

Used tires	Tire width in mm	Adjustable tread
12,4-36	315	1350 - 1800
13,6-36	348	1350 - 1800
14,9-28	315	1425 - 1800
14,9R28	378	1425 - 1800
16,9-28	429	1425 - 1800
16,9R28	429	1425 - 1800
16,9-30	429	1425 - 1800
16,9R30	429	1425 - 1800
480/70R30	479	1425 - 1800
18,4 -30	467	1500 - 1800
18,4 R30	468	1500 - 1800
16,9-34	429	1425 - 1800
16,9R34	429	1425 - 1800
480/70R34	429	1425 - 1800
18,4-34	467	1500 - 1800
18,4R34	467	1500 - 1800

As standard, the tread 1500 mm is set at the production plant.
Setting of rear wheel treads is made by changing the rim and disc positions with lifted rear part of the tractor. It is necessary so that free turning of wheels could be enabled.

Before lifting don't forget to secure the tractor against movement by blocking the front wheels!

After tread changing tighten all screws connecting the disc with the rim by torque 200 - 220 Nm and nuts of screws connecting the disc with the wheel shaft by torque 400 - 470 Nm.

- Retighten screws to the prescribed level after each loosening of rim connection.
- Retighten connections again to the prescribed torque after driving the distance 100 m with unloaded tractor.
- Retighten connections after 3 hours of operation with loaded tractor.
- After 10 hours again check tightening of disc nuts and rim connections.
- Up to operating the first 100 hours frequently check tightening of disc nuts and rim connections at front and rear wheels (minimally 6-times within first 100 hours).
- Then after each 100 operation hours check again tightening of disc nuts and rim connections at the front and rear wheels.

ADDITIONAL WEIGHTS

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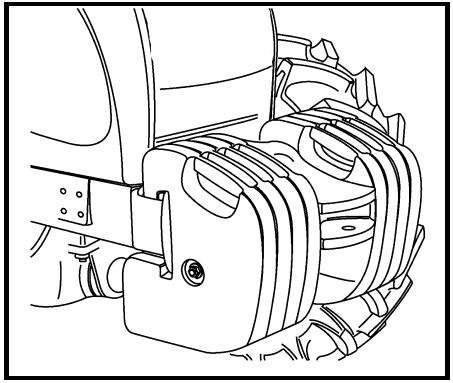
∗Weights of the front three-point hitch 116
∗Weights of rear wheels 116
Valve for filling of tyres with a fluid 117
Chocking of front wheels 117
Procedure of filling of tyres with water 118
Procedure of discharge of a fluid from tyres 118
Maximum weight of fluid (kg) according to dimensions of tyres 119
Non-freezing solution for filling of tyres 119

Additional weights are necessary to increase pressure onto axles, better steering ability and stability of the tractor (when working with a front loader, observe directions of its manufacturer).

ADDITIONAL WEIGHTS



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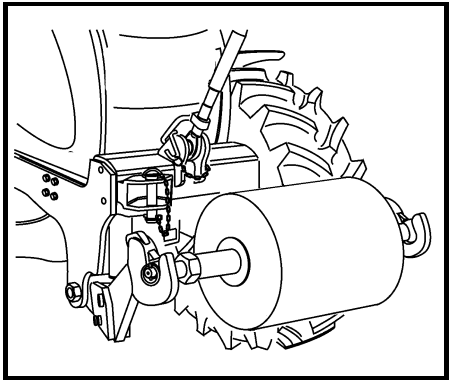

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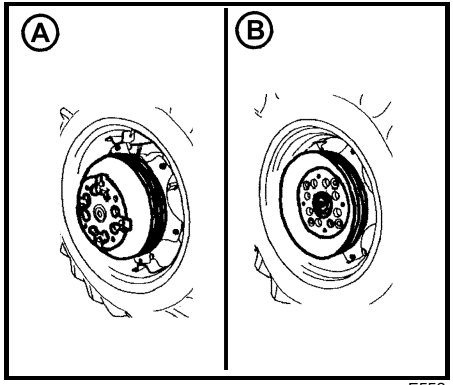


E553

***WEIGHTS IN FRONT OF THE BONNET MASK**

Weights in front of the mask		
Combination of weights (pcs)	Weights (kg)	
4+1	**4**x50 + 66	**266**
8+1	**8**x50 + 66	**466**

***WEIGHTS OF THE FRONT THREE-POINT HITCH**

Weights of the front three-point hitch		
Combination of weights (pcs)	Weights (kg)	
10	**10**x28	**280**

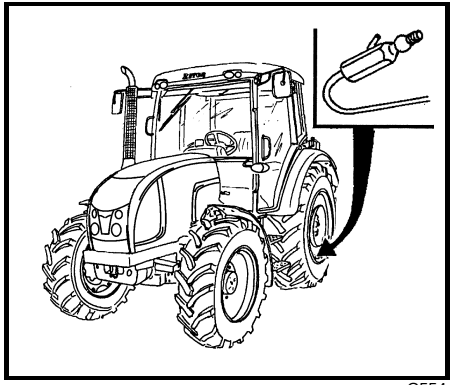
***WEIGHTS OF REAR WHEELS**

Combination of weights (pcs)	Weights (kg)	
2+2	**2**x16 + **2**x30	**90**
2+4	**2**x16 + **4**x30	**150**
2+8	**2**x16 + **8**x30	**270**

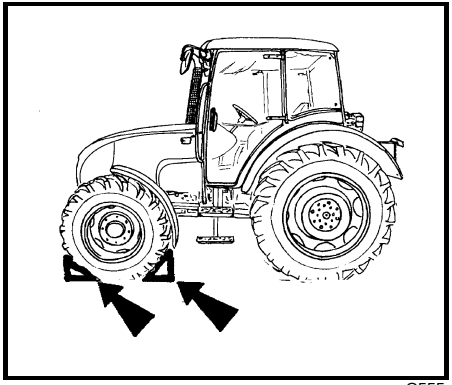
A - Mounting of weights for rear wheel treads 1,350 to 1,500mm

B - Mounting of weights for rear wheel treads 1,575 to 1,800mm

ADDITIONAL WEIGHTS



G554



G555

VALVE FOR FILLING OF TYRES WITH A FLUID

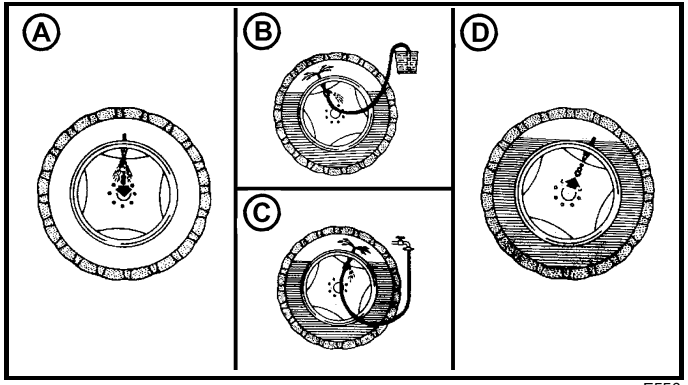
All inner tubes of rear wheels are provided with valves that allow their filling with a fluid if an extension is used.

Tubeless tyres cannot be filled with any fluid! Only radial tubeless tyres can be filled with water for purpose of additional loading. Filling of tubes of the front wheel tyres and rear double wheels with a fluid is not permitted!

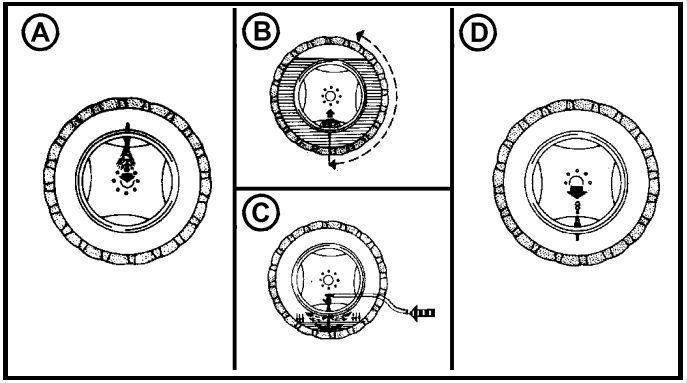
CHOCKING OF FRONT WHEELS

Before lifting of rear wheel do not forget to secure the tractor against any movement by chocking of front wheels!

ADDITIONAL WEIGHTS



E556



E557

PROCEDURE OF FILLING OF TYRES WITH WATER

1. Lift the tractor to relieve the tyre and turn the tyre to position the tyre valve upwards (A).
2. Discharge air and screw out the valve insert.
3. Screw on the extension for filling with water and connect a hose of water supply.
4. Fill the tyre with prescribed volume of the fluid.
5. For filling of the tyre you can use a gravity tank (B) us fill the tyre under pressure (C).
6. Disconnect the hose and screw ooff the water filling extension.
7. Screw in the valve insert and inflate the tyre to the prescribed pressure (D).
8. Then screw on a protective cap onto the valve.
9. Fill up the other tyre in the same way.

PROCEDURE OF DISCHARGE OF A FLUID FROM TYRES

1. Lift the tractor to relieve the tyre and turn the tyre to position the tyre valve upwards (A).
2. Discharge air and screw out the valve insert; turn the wheel to position the valve downwards.

   ⚠ *Discharging of the fluid may cause underpressure in the tyre. Therefore turn slightly the wheel from time to time to get tha valve to upper position (B)!*
3. Remove residues of the fluid using compressed air after screwing in the water filling extension (C).
4. Blow out fluid as long as it stops flowing out from the air extension pipe.
5. Screw off the water filling extension.
6. Screw in the (D)
7. Then screw on a protective cap onto the valve.
8. Discharge fluid from the other tyre in the same way.

ADDITIONAL WEIGHTS

MAXIMUM WEIGHT OF FLUID (kg) ACCORDING TO DIMENSIONS OF TYRES

Tyre dimensions	12,4-36	14,9-28	16,9-28	16,9-30	480/70R30	16,9-34	18,4-30	18,4-34
Weight (kg)	160	190	215	240	280	250	337	345

NON-FREEZING SOLUTION FOR FILLING OF TYRES

Water for preparation of solution	Calcium chloride $CaCl_2$	Lime hydrate	Solution density at 20 °C	Solidification point approx.	Total volume	Additional weight
(l)	(kg)	(kg)		(°C)	(l)	(kg)
45	11,8	0,21	1,13	-18	50	57
45	13,9	0,23	1,18	-25	50	59
45	15,4	0,25	1,21	-30	50	61

Preparation of solution:

1. ***Anhydrous lime $CaCl_2$ shall be added to water, never inversely!***
2. The fluid is not dangerous, however, handle with it carefully. Wash spilled drops with clean water.
3. Before filling let the solution cooled down. Observe the prescribed volume of hydrated lime.
4. The solution may not come into contact with metal parts and electric installation! It does not damage the tyre tube valve.
5. Frost-resistant solution, prepared in the given composition, may not be used in the cooling system!
6. Dispose anti-freeze means after discharging as special waste!

ELECTRIC INSTALLATION

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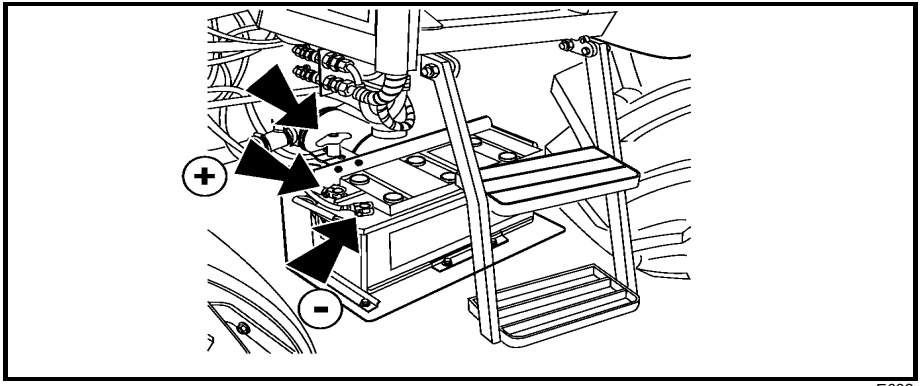
No additional interventions may be carried out on electric installation of the tractor (connection of other electric consumers) due to its possible overloading!
With repairs of electric installation pay special attention in particular to manipulation with the battery to avoid any contact of electrolyte with skin or clothing.

ELECTRIC INSTALLATION



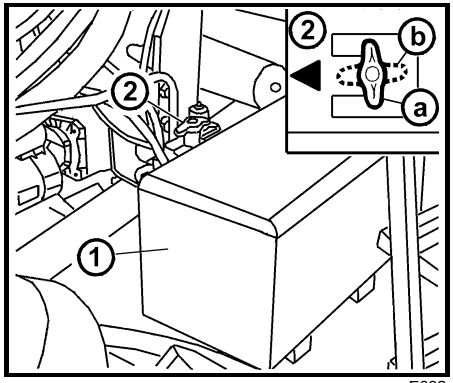
E602

ESSENTIAL SERVICE INFORMATION

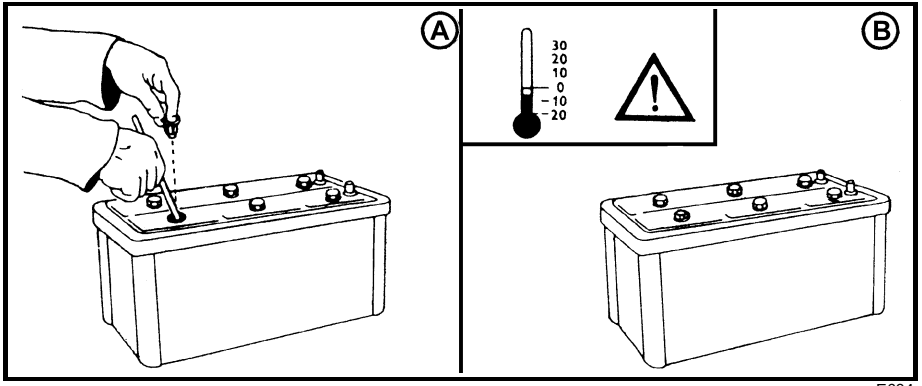
The battery shall always be connected with “minus” pole to the frame and “plus” pole to the alternator. Reverse connection of the battery destroys the semi-conducting equipment of the alternator. With use of an additional battery for starting of the tractor, do not forget connect the outlets "plus" to "plus" and "minus" to "minus". In case of a replacement of some part of the charging circuit, disconnect the battery using the disconnector from the frame of the tractor (“-“ pole). This prevents any accidental short-circuit on the terminals.

With any manipulation or repair of the starter it is necessary to disconnect minus pole of the battery and move all shifting levers including lever of engagement of the output shaft to neutral position (do not also forget if arrested switches of output shafts on the right column of the cabin are off to avoid spontaneous start and jeopardise life of the mechanic.

It is forbidden to start the tractor by short-circuiting the starter terminals. Start the tractor from the driver’s seat only.



E603



E604

BATTERY

The battery (1) is installed on the left side, under the cabin.

The battery disconnector (2) in installed on the left side at the batter.

a - Battery connected

b - Battery disconnected

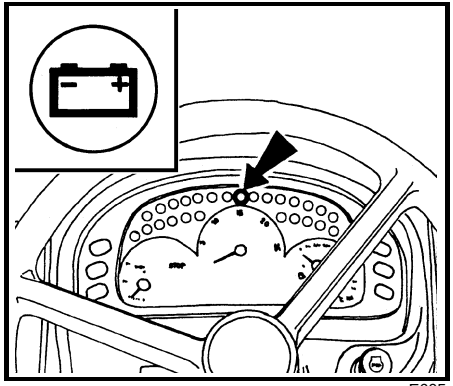
In case that the tractor is put out of operation for a longer period, it is recommended to disconnect the battery using the battery disconnector. It is necessary to charge the battery at least each three months due to its self-discharging.

MAINTENANCE OF THE BATTERY

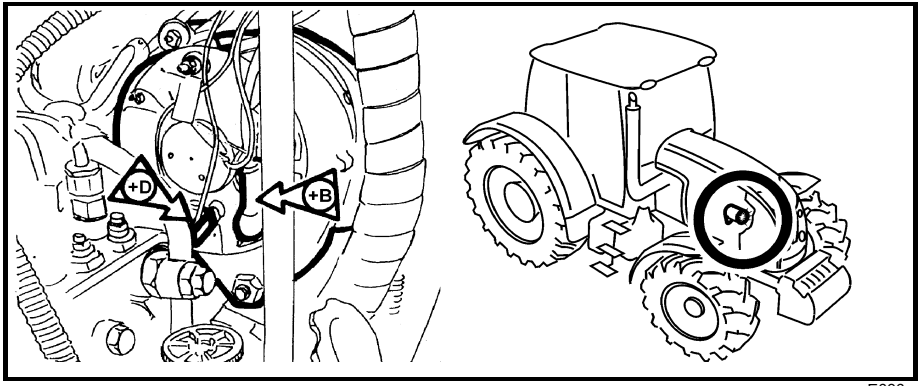
Keep the battery clean and fixed safely to the vehicle. However, the fixing device may not deform the battery case. In case of polypropylene batteries electrolyte level shall not be under the minimum level mark as seen on the case.

Refill the battery with distilled water only!

1. *Read carefully the instructions delivered with the battery before you handle with it!*
2. *Protect your eyes with goggles or face shield when handling with the battery!*
3. *Electrolyte is strong caustic, therefore handle with it carefully! Wash skin, stained with electrolyte, with water and neutralise with soap, as well as stained clothes. Keep out of reach of children!*
4. *Charging generates hydrogen on the electrodes that is explosive if mixed with air. It is forbidden to handle with open flame close to the battery being charged!*
5. *Explosion may also be caused by a spark when disconnecting the battery or a by released terminal when the charging circuit is under voltage!*
6. *Disposed battery is dangerous waste; when purchasing a new battery, deliver the old one to the dealer for free disposal.*
7. *Insufficiently charged battery may freeze in winter.*



E605



E606a

ALTERNATOR

It is accessible after opening of the bonnet. Recharging of the battery is indicated by a red light on the dashboard cluster; this light shall be off after starting the engine.

Burnt indication lamp 12V/2W shall be immediately replaced by a lamp of identical parameters. The indicator is part of the alternator excitation circuit; in case that the lamp is burnt, the battery is not recharged!

When repairing the tractor using electric welding all conductors shall be disconnected from the alternator. Protect the conductor "+B" against short-circuit.

MAINTENANCE OF THE ALTERNATOR

During cleaning and washing of the tractor protect the alternator against water or diesel oil!

Alternator shall not be disconnected from the battery during run of the engine!

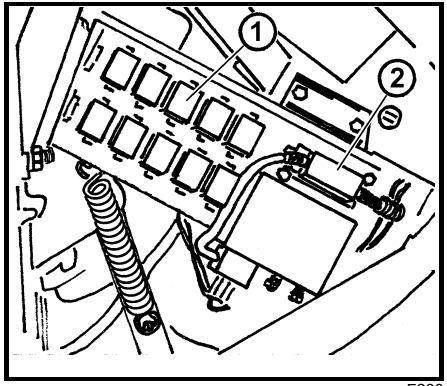
Alternator shall not be put into operation without loading, i.e. with the conductor disconnected from the terminal "+B" and connected terminal "+D". Such connection may generate extraordinary high voltage in case of increasing of speed of the engine and such voltage might destroy the semi-conductors!

Never short-circuit any battery terminal during run of the engine!

Alternator shall not be excited additionally. In such case the semi-conductors may be damaged!

Pay attention to perfect electric connection on the terminals and grounding of the alternator!

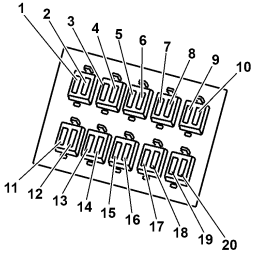
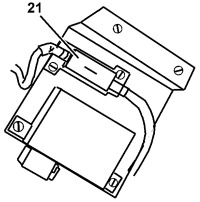
Poles of the alternator may not be reversed even for a short time!

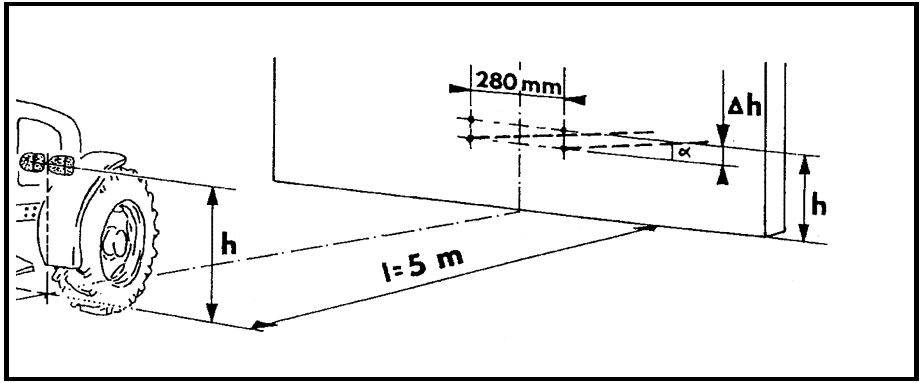


F306

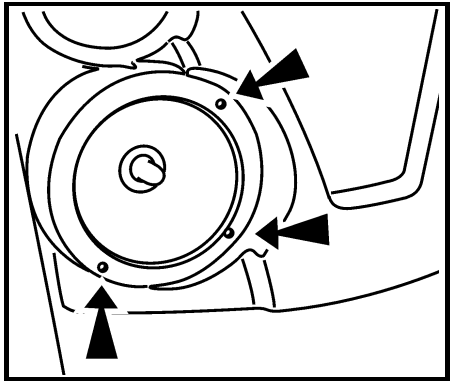
FUSE BOX

It is accessible after removal of the left cover of the steering bracket.
The blade-type fuses (1) shall be replaced for new ones having the same rating. In case of repeated blowing seek an authorised repair shop.
Rating of the strip-type fuse (2) is 80 A.

Layout of fuses in the fuse box	Pos.	Fuse rating	Protected system
  F307	1	15A	Interrupter of warning lights Stop lights
	2	15A	Horn, beacon
	3	15A	Control of front driving axle, control of differential lock, dashboard power supply,
	4	15A	High beams with indicator
	5	15A	Left marker lights, dashboard illumina- tion, registration plate illumina-tion
	6	15A	Right marker lights, rear working headlight with indicator
	7	15A	Right low beams, fog light + indicator
	8	7,5A	Left low beams, indicator of lights in the mask/on the roof of the tractor
	9	15A	Working lights in the front mask
	10	3A	Front VH Zuidberg
	11	15A	Front and rear wipers, washer, radio “15“
	12	20A	Heating fan, radio “30“
	13	15A	Recirculation, cigarette lighter
	14	7,5A	Air-conditioning (compressor clutch)
	15	15A	mirror heating
	16	15A	rear window defroster
	17	15A	Driver’s seat compressor
	18	20A	3-pin socket
	19	15A	Front working headlamps on the roof
	20	15A	Rear working headlamps on the roof
	21	80A	Heating plug



E609



G610

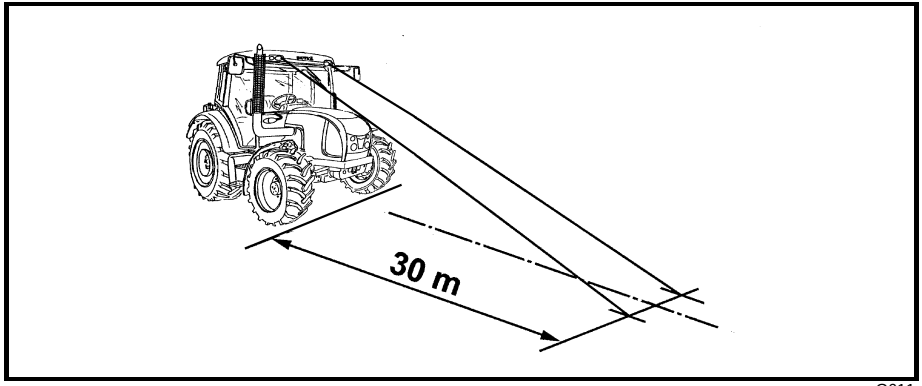
CHECK OF ADJUSTMENTS OF LIGHTS IN THE MASK OF THE TRACTOR

When checking the headlamps using a testing wall, the tractor shall stand on a horizontal surface and the tyres inflated to the prescribed pressure. Basic vertical adjustment is 3.5% at unladen weight of the tractor. In horizontal direction the light beams shall be parallel with longitudinal axis of the tractor symmetry.

- **l** - Distance of the testing wall from the headlamp (5m)
- **h** - Height of the headlamp centre above the road surface
- **Δh** - Headlamp inclination -3.5% of the testing wall distance = 17.5cm
- **α** - Elevation of the asymmetric light picturing (15%)

ADJUSTMENT OF LIGHTS IN THE MASK OF THE TRACTOR

Adjustment is carried out by all screws for vertical and horizontal directions simultaneously. After adjustment all springs of non-adjustment screws shall be pre-stressed! Each headlight is adjusted independently. The lamp can be replaced by its pulling out from the rear side of the headlight parabola.



G611

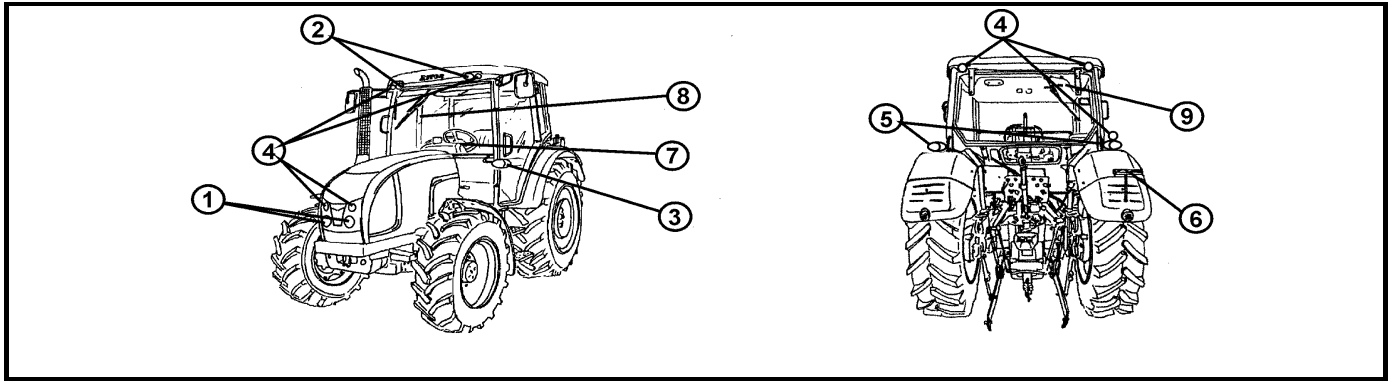
CHECK OF ADJUSTMENT OF LIGHTS ON THE ROOF OF THE CABIN

In vertical direction any point of the illuminated area within plane of the road to the left from the longitudinal vertical plane passing through the headlight centre shall not be more than 30m from the front outline of the tractor.

In horizontal direction the headlight beams shall be parallel with the longitudinal axis of symmetry of the tractor.

Carry out checks of adjustment of the headlamps at unladen weight of the tractor. The front roof headlights may be used during traffic on ground roads only if there is a front-carried mechanism is coupled to the tractor or an equipment covering the main headlights (in the mask of the tractor).

ELECTRIC INSTALLATION



QQQ_G612

LIST OF LAMPS

Pos.	Locations of lamps	Voltage	Power	Socket	Note
1	Main headlights H4	12V	55/60W	P 43t	
2	Roof low beams H7	12V	55W	PX26d	
3	Front combined lights Direction indicators P21W Marker lights R5W	 12V 12V	 21W 5W	 BA 15s BA 15s	
4	Working and ploughing headlamps	12V	65W	PGJ19-5	
5	Rear combined lights Tail and stop lamps Direction indicators	 12V 12V	 5 /21W 21W	 BAY 15d BA 15s	
6	Registration plate illumination C5W	12V	2x5W	SV 8,5-8	
7	Dashboard	12V	2W	W2x4,6d	Illumination, recharging indicator
		12V	1,2W	W2x4,6d	Other indicators
8	Lighting of the cabin	12V	5W	SV 8,5-8	
9	Illumination of the heating panel	12V	1,2W	W2x4,6d	

TRACTOR MAINTENANCE

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TRACTOR MAINTENANCE

OPERATIONS CARRIED OUT DAILY BEFORE BEGINNING OF WORK

Before engine start

Check of amount of oil in engine
Check of amount of coolant and impermeability of joints of the cooling system
Check of amount of oil in steering hydrostatic circuit reservoir
Check of amount of brake fluid and impermeability of hydraulic brakes
Check of amount of oil in gearbox and axle drive
Check of indicator of air cleaner pollution
Check of air pressure in all of the tyres
Check of tightening of wheels
Check of towing jaws and connecting equipment

After engine start

Check of engine lubrication function (indicator lamp)
Check of charge function (indicator lamp)
Check of steering function (indicator lamp)
Check of steering circuit function and impermeability
Check of tractor brakes function and efficiency
Check of trailer or semi-trailer brakes function and efficiency

OPERATIONS CARRIED OUT AFTER EVERY 50 HOURS OF WORK

Tractor lubrication in accordance with lubrication chart

OPERATIONS CARRIED OUT AFTER EVERY 100 HOURS OF WORK

Cleaning of radiator elements with compressed air
Maintenance of dry air cleaner (depending on signal from the pollution indicator)
Check of amount of oil in gearbox and axle driving box
Check of amount of oil in rear axle portal
Check of amount of oil in front output shaft gearbox housing
Check of amount of oil in reducers and front driving axle housing
Discharge of condensate from air reservoir

OPERATIONS CARRIED OUT AFTER EVERY 500 HOURS OF WORK

Check of Vee belt tension
Check of clearances in the whole hydrostatic steering system
Check of front axle pin clearance
Check of adjustment of coupling and brake pedal clearance
Check of foot brake and handbrake function
Check of hand coupling function **P**
Check of trailer brake function
Cleaning and application of a lubricating grease thin layer on accumulator battery terminals
Check of air-pressure system impermeability and function
Check of driver's seat function, lubrication of movable parts with grease

OPERATIONS CARRIED OUT OUTSIDE THE INTERVAL OF 500 HOURS OF WORK						
	In a new tractor or a tractor after overhaul					
Condition of engine hour-meter	500	1000	1500	2 000	2 500	Always after…. hours of work
Check and adjustment of valve clearance	o				o	2000
Check of injector opening pressure and injection nozzle function	o				o	2000
Replacement of hydrostatic steering hoses						After every 3500 Mth or 4 years
Check of convergency of the front wheels				o		2000
Refilling of lubricating grease in front wheel hubs (max.1/3 of the wheel hub space) **P**			o			1500
Check of front wheel bearing clearance **P**			o			1500

TRACTOR MAINTENANCE

REPLACEMENT OF FILLINGS AND FILTERS						
	In a new tractor or a tractor after overhaul					
Condition of engine hour-meter	100	500	1 000	1 500	2 000	Always after .... hours of work
Replacement of engine oil	o	o	o	o	o	500
Replacement of engine oil filter cartridge	o	o	o	o	o	500
Replacement of fuel filter cartridge		o	o	o	o	500
Replacement of air filter cartridge			o		o	1000
Replacement of air filter safety cartridge					o	2000
Replacement of heating filter cartridge						After every 1000 Mth or 2 years
Replacement of coolant						After every 2 years
Replacement of brake fluid						After every 2 years
Replacement of oil in gearbox and axle drive				o		1500
Replacement of oil in rear axle portals				o		1500
Changing suction filter (hydraulic pump suction filter)		o	o	o	o	500
chaning insertion of oil cleaner		o	o	o	o	500
Replacement of oil in front driving axle housing	o		o		o	1000
Replacement of oil in front driving axle reducers	o		o		o	1000
Replacement of hydrostatic steering oil				o		1500
Replacement of hydrostatic steering filter cartridge				o		1500
Replacement of oil in front output shaft housing and cleaning of oil filter screen		o	o	o	o	500

FUELS, COOLANTS AND LUBRICANTS USED - AMOUNTS	
Name	litres
Brake fluid	0,5
Coolant	
Coolant without cabin	19
Coolant with cabin	20,5
Oil in engine	10
Oil for hydrostatic steering	2,5
Oil for front driving axle housing	5,5
Oil for front driving axle planet reducers	2x0,6
Oil for front driving axle planet reducers equipped with brakes	2x1,7
Oil for portal	2x1,9
Oil for gearbox and axle drive	59 •
Oil for front output shaft gearbox	2,7
Fuel	124/150

• - In tractors without the front driving axle the amount of oil should be by 2 litres lower. If the tractor works on a slope, filling should be increased by about another 7 litres oil. This should also apply to aggregation with machines connected with the hydraulic outside circuit.

OILS FOR FOUR-CYLINDER SUPERCHARGED ENGINES ZETOR		
Oil marking	**Viscosity class SAE**	**Output class API**
Shell Rimula R3 X	15W-40	API CH-4
MOL Dynamic Transit	15W-40	API CI-4
MOL Dynamic Turbo Diesel	15W-40	API CF-4
ORLEN OIL Diesel(2)HPDO	15W-40	API CG-4
ÖMV truck LD	15W-40	API CI-4
ARAL Mega Turboral	10W-40	API CH-4
Fuchs Titan Truck	15W-40	API CG-4
MOGUL DIESEL DTT PLUS	10W-40	API CF
MOGUL DIESEL DT	15W-40	API CG-4/SL
MOGUL DIESEL DTT EXTRA	15W-40	API CI-4/SL
TRYSK SUPER (M7 ADS III)	15W-40	API CF-4
TRYSK SUPER TURBO (M7 ADS IV)	15W-40	API CG-4/SL

OILS FOR FRONT OUTPUT SHAFT	
Producer	**Oil marking**
BP	Autran DX III
	Fluid 9
Shell	Donax TX
Esso	ATF E 25131
Castrol	Transmax S
Elf	Elfmatic G2 Syn
	Elfmatic G3
FINA	Finamatic HP
	Finamatic S6726

Producer	**Oil marking**
Mobil	Mobil ATF
Texaco	Texamatic 7045
Valvoline	ATF Dextron II-E
Beverol	Dextron II-E
	(Fina)matic HP
JD	Hygard JDMJ 20C
Total	Fluide AT42
	Fluidematic Syn

OILS FOR TRACTOR TRANSMISSION GEARING			
Viscosity class SAE J 306 MAR 85	**Output class API** SAE J 308 NOV 82	**Suitability of use**	**Specification**
80 W	GL-4	All year round	MIL-L-2105

OILS FOR TRACTOR TRANSMISSION GEARING			TAB. 2
Producer	**Oil marking**	**Viscosity class SAE**	**Output class API**
Paramo Pardubice	Gyrol - UTTO	80W	GL-4
	Gyrol 80W	80W	GL-4
	Mogul Trans 80	80W	GL-4
	Mogul Traktol UTTO/EKO	80W	GL-4
Esso	Torque Fluid 62	80W	GL-4
Aral	EP 80	80W	GL-4
	Fluid HGS	80W	GL-4
	Super Traktoral	10W-30	GL-4
ÖMV	Austromatic HGN	80W	GL-4
	Gear Oil EC 4	80W-85W	GL-4
	Austrotrac	10W - 30	GL-4
Shell	Shell Donax TD	80W	GL-4
	Shell spirax GX	80W	GL-4
Fuchs	Titan Hydramot 1030MC	10W-30	GL-4
	Renolin G 100	80W	GL-4
MOL	Farm NH Ultra (UTTO)	80W	GL-4
	Hykomol 80W	80W	GL-4
ORLEN OIL	Hipol® 6	80W	GL-4

OILS FOR FRONT DRIVE AXLE			
Producer	**Oil marking**	**Viscosity class SAE**	**Output class API**
Agip	Rotra Multi THT	80W	GL-4
Aral	Fluid HGS	80W	GL-4
Esso	Torque Fluid 62	80W	GL-4
Fuchs	Titan Supergear	80W-90	GL-4/GL-5
	Titan Hydramot 1030MC	10W-30	GL-4
	Titan Renep 8090MC	80W-90	GL-4/GL-5
ÖMV	Gear Oil LS	85W-90	GL-5
Shell	Spirax AX	80W-90	GL-5
MOL	Hykomol K 80W-90	80W - 90	GL-5
ORLEN OIL	Platinum Gear 80W-90	80W - 90	GL-5

OIL FOR HYDROSTATIC STEERING FOR TRACTORS		
Producer	**Oil marking**	**Classification**
Aral	Vitam DE 32	HLP DIN 51524
Fuchs	RENOLIND10VG32	HLP DIN 51524-2
ÖMV	Hyd HLP 32	HLP DIN 51524
Shell	TELLUS DO 32	HLP DIN 51524
PARAMO	MOGUL H-LPD 32	HLP DIN 51524
PARAMO	MOGUL HM 32	HLP DIN 51524
MOL	Hydro HV 32	HVLP DIN 51524-3
ORLEN OIL	Hydrol L-HM 32	HLP DIN 51524-2
	Hydrol L-HM 46	HLP DIN 51524-2

PLASTIC LUBRICANT FOR TRACTOR	
Type	**Classification**
MOGUL LA 2	ISO 6743/9 CCEB 2/3, ISO - L - XBCEA 2
MOGUL LV 2M	ISO 6743/9 CCEB 2/3
ÖMV signum	DIN 51825-K 2 C-30
Shell retinax HD2	DIN 51825 KP 2 K-20
MOL	Liton LT 2EP
ORLEN OIL	Liten® Premium ŁT-4 EP2

FLUIDS FOR TRACTOR HYDRAULIC BRAKES	
Type	**Classification**
Synthol 205	PND 31-656-80, ISO 4925, SAE - J 1703
Fuchs MAINTAIN DOT 4	SAE - J 1703
Brake Fluid DOT 4	ISO 4925, SAE - J 1703
Shell Donax YB	SAE J 1703, ISO 4925
EVOX DOT 4+	SAE J 1704, ISO 4925/4
	NOTE! 1. *The fluid is not determined for arctic conditions!* 2. *The brake fluid should be replaced once every two years regardless of hours of work!* 3. *The fluids of the same classification may be mixed.*

FLUID FOR TRACTOR COOLING SYSTEM

FRIDEX - STABIL, FRIDIOL 91 or FRICOFIN S and demineralised water in proportion 1:1.5 (refilling should be carried out in the above-mentioned proportion).
Anti-freeze for refilling abroad should contain anti-corrosive additives protecting any materials (including rubber and head sealing) of the engine cooling system.

NOTE!

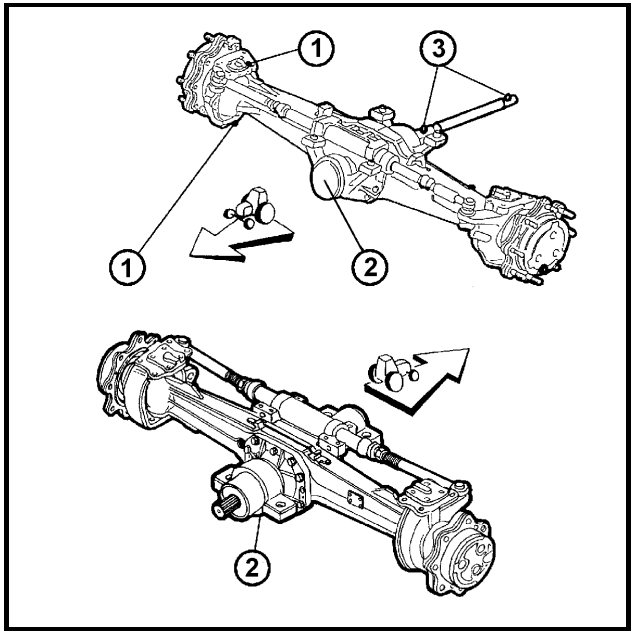
1. *It is forbidden to charge the tractor cooling system with water without antifreeze!*
2. *The coolant should be changed after two years of operation. Fluids FRIDEX - STABIL and FRIDIOL 91 may be mixed.*
3. *Possibility to mix with fluids of other producers hasn't been tested!*

FUEL

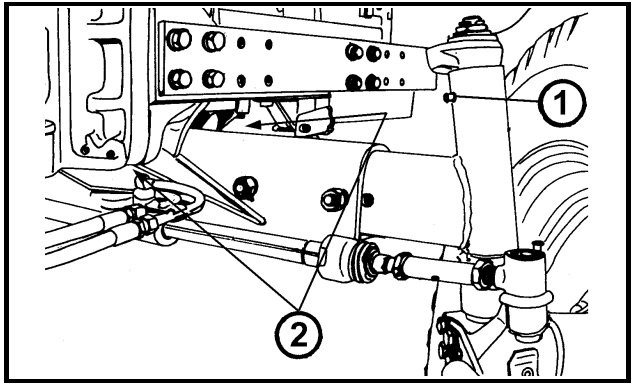
Diesel fuel for summer period from 01.04. to 31.10.
Diesel fuel for winter period from 01.11. to 31.3.
Notice: Similarly suitable types of fuel should be used abroad.

Mixed fuel Natural Diesel (bio diesel fuel).
Notice: Tractor operation with the bio diesel fuel requires equipment of the fuel system with the REP hoses. Use of the bio diesel fuel increases consumption, decreases output by about 5%, and requires oil change in the engine after 200 hours of work. It also has corrosive effect on painted parts.

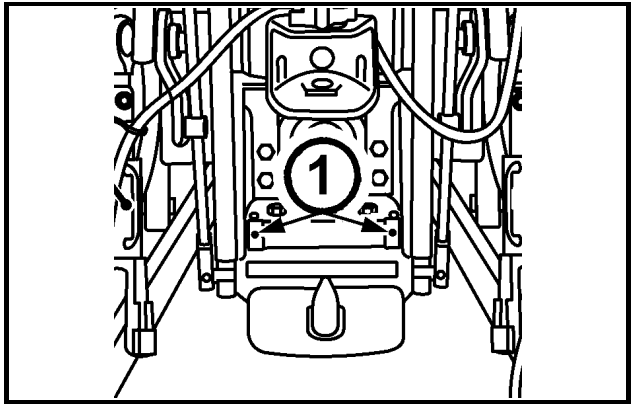
TRACTOR LUBRICATION CHART



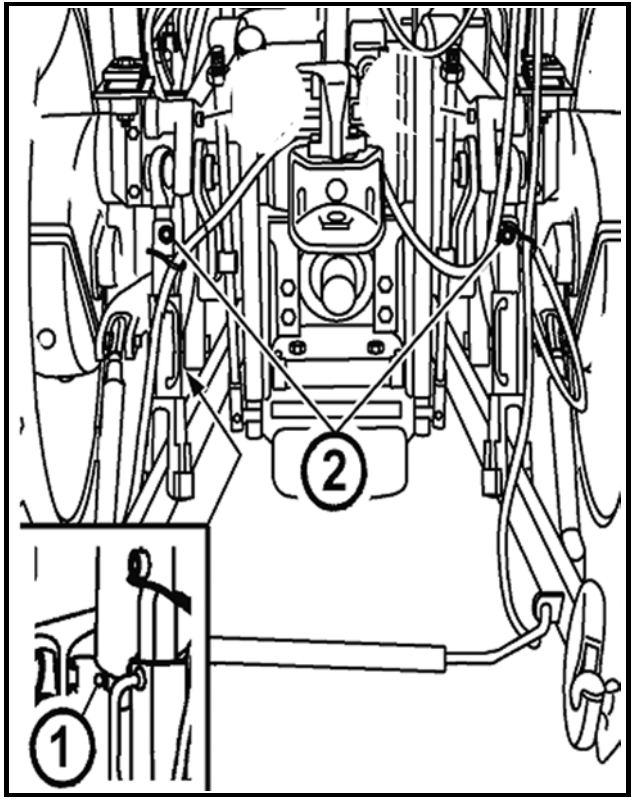
FRONT DRIVING AXLE		
Pos. No.	Name	Number of lubr. points
1	Kingpins	4
2	Central pin	2
3	Connecting shaft coupling	2



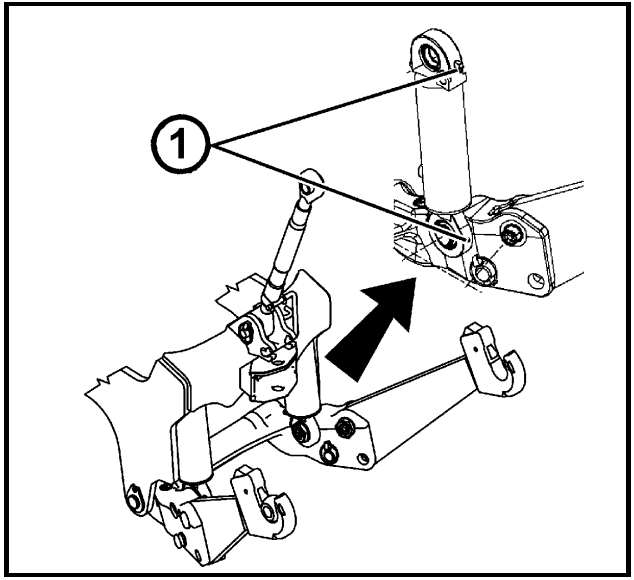
FRONT NON-DRIVING AXLE		
Pos. No.	Name	Number of lubr. points
1	Kingpins	2
2	Central pin	2



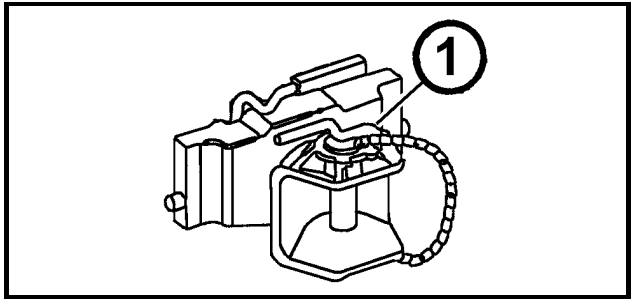
SUSPENSION FOR SINGLE-AXLE TRAILER		
Pos. No.	Name	Number of lubr. points
1	Hook pin bearings	2



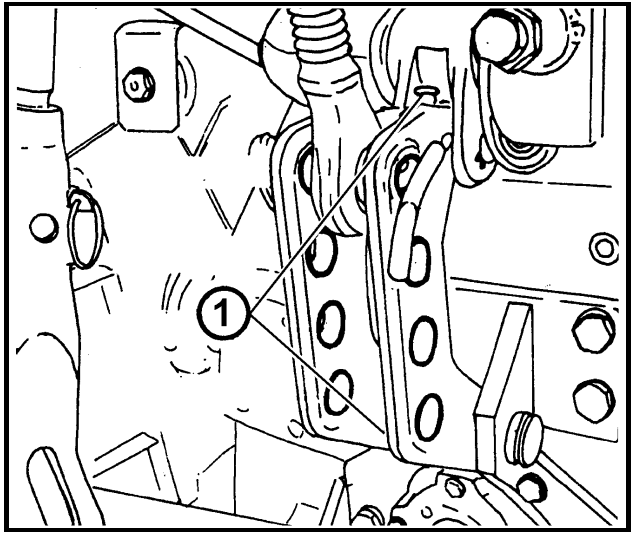
THREE-POINT SUSPENSION		
Pos. No.	Name	Number of lubr. points
1	Pins of hydraulic auxiliary cylinders	2
2	Lifting linkages	2



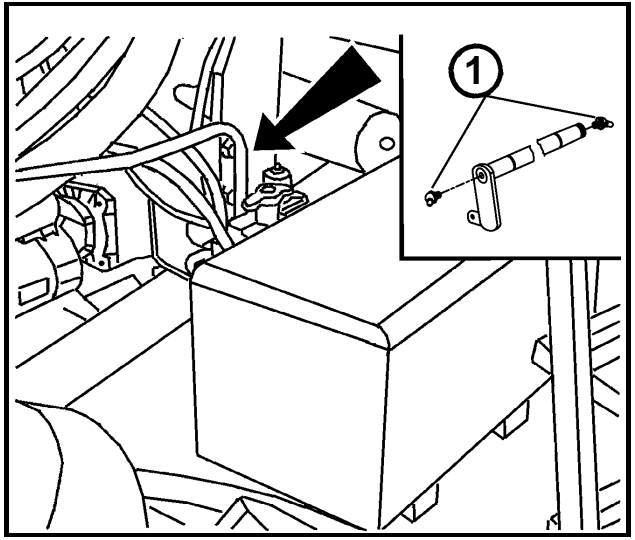
FRONT THREE-POINT SUSPENSION		
Pos. No.	Name	Number of lubr. points
1	Pins of cylinders of front three-point suspension	4



SUSPENSION MOUTH FOR TRAILER		
Pos. No.	Name	Number of lubr. points
1	Suspension mouth for trailer	1



UPPER LINKAGE BRACKET		
Pos. No.	Name	Number of lubr. points
1	Pins of upper linkage bracket	2



PIN OF COUPLING SWITCHING OFF		
Pos. No.	Name	Number of lubr. points
1	Pin of coupling switching off	2

TRACTOR MAINTENANCE

OVERHAUL IN PROXIMA TRACTORS

Overhaul of the tractor is necessary if its subsequent use is not economical, most of its parts require repair or the overall technical condition endangers safety of transport.
If all instructions for maintenance are followed in accordance with the manufacturer's documentation and in work in moderate climate and on flat terrain the engine and gear mechanism average service life is 8000 hours of work.
The number of hours of work shall apply to the following distribution of the tractor work:

ploughing and ground preparation for sowing	**15 - 25 %**
planting and sowing	**10 - 15 %**
harvesting	**10 - 20 %**
agricultural transport	**40 - 65 %**

If the tractor works in mountain and piedmont areas, the engine and gear mechanism service life is reduced by 15-20 %.
If the tractor works in severe climate conditions, the engine and gear mechanism service life is reduced by 15 - 20 %.
Notice: The front driving axle is considered a part of the gear mechanism.

TECHNICAL MAINTENANCE OF TRACTORS AFTER OVERHAUL OF UNITS

Initial run of the tractor after the overhaul should follow instructions for initial run of a new tractor. Maintenance is the same as in a new tractor.

MAINTENANCE INSTRUCTIONS

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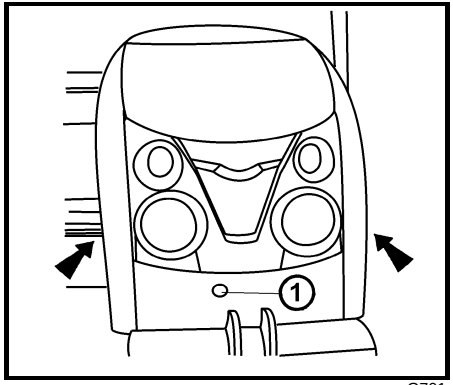
Most of operations of planned maintenance may be carried out by the driver or other user of the tractor. In case you do not have sufficient technical equipment, let the difficult operations carried out by a specialised repair shop.

All works, connected with cleaning, lubrication and adjustments of the tractor or coupled mechanisms may only be carried out after stopping of the engine and other movable components except checks of brakes, recharging and hydraulic system.

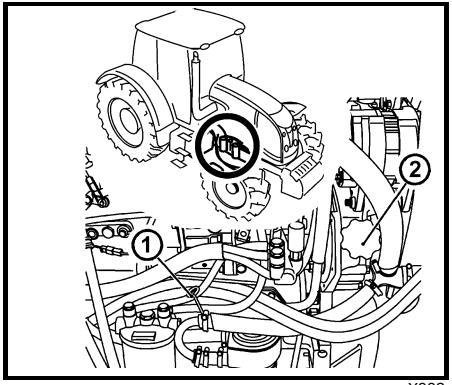


G701

OPENING OF FRONT BONNET

Opening of the bonnet:
Unlock the bonnet by pressing of the pushbutton (1); grasp it in places of the arrows and lift it.
The bonnet is hold in lifted position by a gas-fluid strut.
Closing of the bonnet:
Grasp the bonnet in places of the arrows; pull it downwards until the lock clicks.

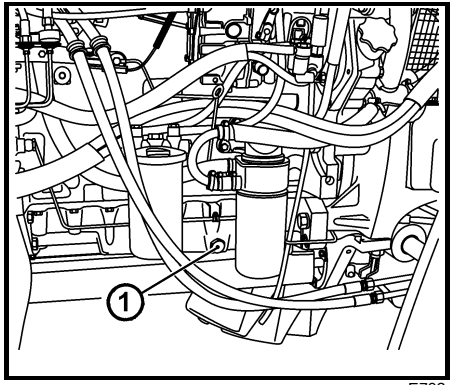
Rapid closing of the bonnet may damage filaments of bulbs in headlights in the front mask.



X903

CHECK OF ENGINE OIL LEVEL

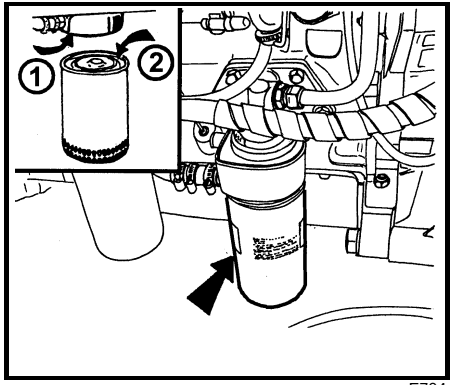
Check oil level every day, before start of operation, on the tractor standing on a horizontal surface. The oil gauge rod (1) and filling hole (2) are located on the right side of the engine. Screw out the gauge rod (1), wipe it with a cloth and screw in. After re-screwing it out the oil level shall not be under the lower gauge mark. Refill oil through the filling hole as necessary (2).



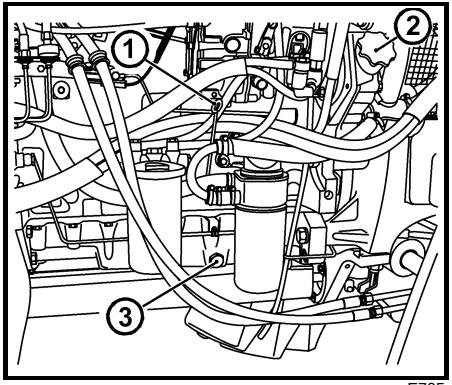
E703

DISCHARGE OF ENGINE OIL

1. Screw out the drain plug (1), the best immediately after a drive or warming-up of the engine to its operating temperature.
2. Discharge oil.
3. Clean the drain plug.
4. Screw the drain plug (1) into the hole.



E704



E705

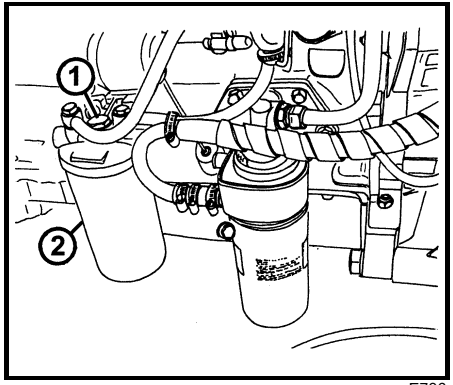
REPLACEMENT OF FULL-FLOW ENGINE OIL CLEANER

It is replaced with each replacement of engine oil. Before re-installation of a new cleaner clean the sealing surface of the body (1) and cleaner (2). Apply engine oil on rubber sealing and tighten the cleaner by hand. After seating of the sealing onto sealing of the block tighten the cleaner by additional 3/4 to 1 1/4 turn. Check tightness after start of the engine.

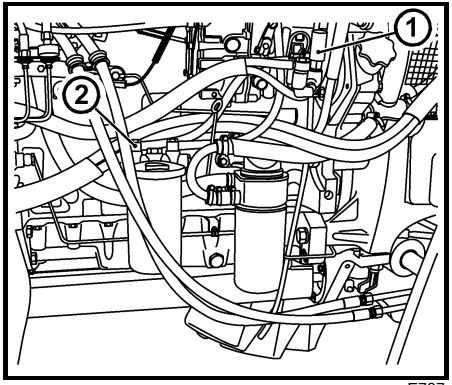
POURING OF OIL INTO ENGINE

Pour prescribed volume of oil into the filling hole (2, start the engine and let it running for 2 to 3 minutes at 750 to 800 rpm.

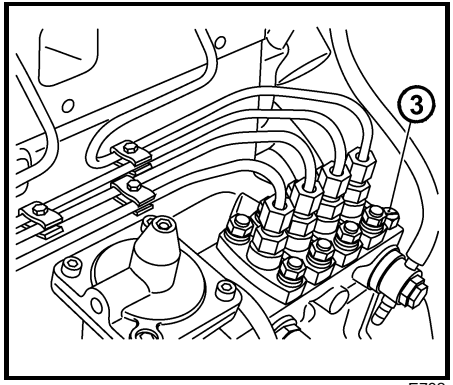
After stopping the engine and stabilisation of level check oil level using the oil gauge rod (1) and check tightness of the cleaner, drain plug (3) and other connections.



E706



E707



E708

REPLACEMENT OF FUEL FILTER CARTRIDGE

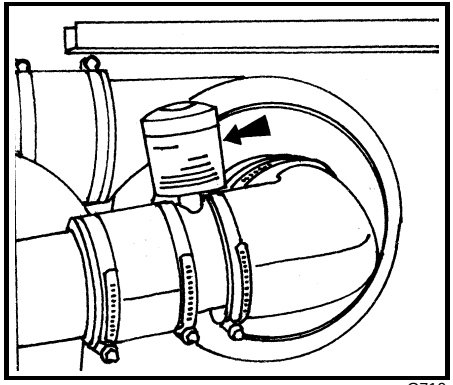
Before replacement of the fuel filtration cartridge put a suitable container under the engine to catch any fuel leaking from the cleaner.

1. Release the nut (1).
2. Screw out the body (2).
3. Clean the body and replace the filtration cartridge.
4. Check correct seating of the body sealing.
5. Re-install the body.
6. Bleed the fuel system.

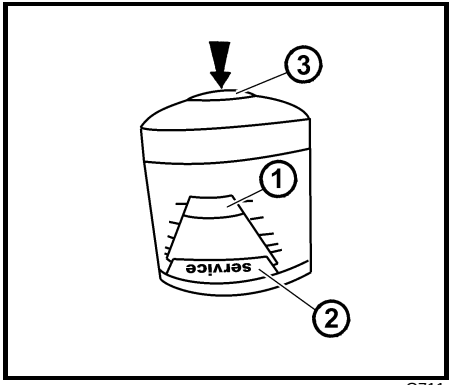
BLEEDING OF FUEL SYSTEM

Before bleeding put a suitable container under the engine to catch any fuel leakingfrom the cleaner and injection pump.

1. Pressurise the fuel system by several strokes of the feeding pump (1).
2. Release the screw of connection of fuel supply to the cleaner (2) and let the foam escaped.
3. Tighten the screw (2) and repeat the procedure until clean fuel begins flow out from the cleaner after release of the screw.
4. Bleed the injection pump in the same way.
5. Carry out bleeding by the screw (3) that is located on the pump body.



G710



G711

MAINTENANCE OF DRY AIR CLEANER – INDICATOR OF CLOGGING

Maintenance of the cleaner should be carried out when indicator of clogging warns you of clogging.

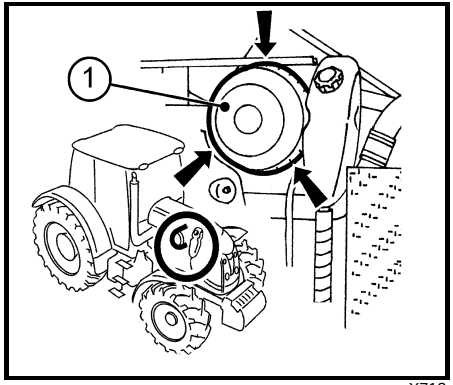
The indicator is accessible after opening of the front bonnet of the tractor. It is installed on the left side of the air cleaner, close to the suction pipe elbow.

FUNCTION OF INDICATOR OF CLOGGING

Degree of clogging of the air filter is indicated by position of the slider (1) in the indicator window. In case that the slider (1) reached the red field marked **service** (2), maintenance of the dry air cleaner is necessary.

After completion of maintenance of the dry air cleaner ensure correct function of the indicator of clogging.

Push the cap on the indicator body (3) in direction of the arrow; this unlocks mechanically the slider (1) that indicates clogging; the slider then returns of its initial position and restores function of the indicator.

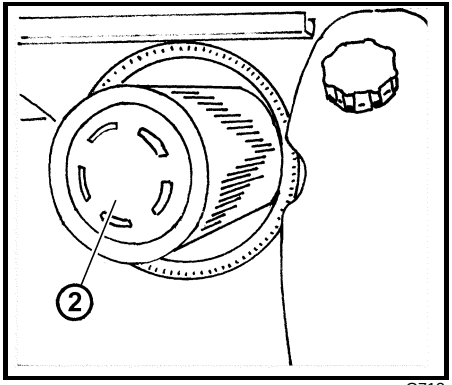


X712

INSTRUCTIONS FOR MAINTENANCE OF DRY AIR CLEANER

Carry out maintenance of the air cleaner as follows:

1. Lift the front bonnet.
2. Release clips of the air cleaner lid (marked by arrows).
3. Remove the cleaner lid (1).



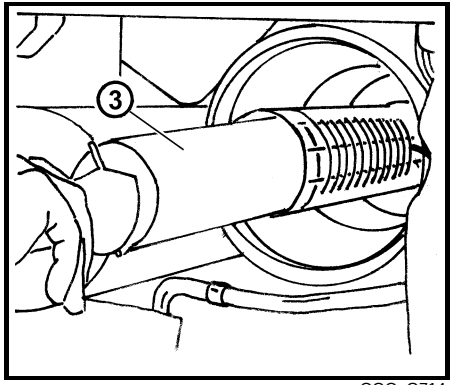
G713

REGENERATION OF THE MAIN AIR CLEANER CARTRIDGE

– Pull out the main cartridge of the dry cleaner (2).

Unless the main cartridge is damaged (no dust may be on the inner surface of the cartridge), carry out regeneration by purging using compressed air from the inner side of the cartridge.

This cleaning procedure may be repeated maximum three times. The cartridge shall be replaced every year.



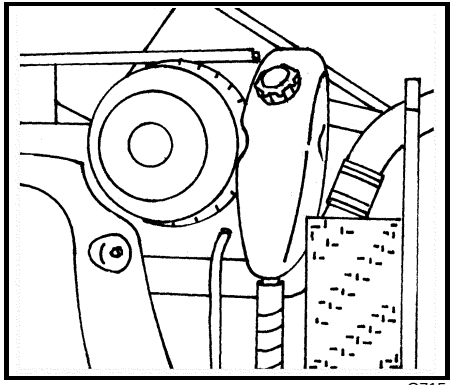
QQQ_G714

REPLACEMENT OF AIR CLEANER LOCKING CARTRIDGE

– Pull out the locking cartridge of the dry cleaner (3).

The locking cartridge cannot be regenerated. It shall always be replaced in these cases:

- *when the main cartridge is damaged*
- *after 5 maintenances of the air cleaner*
- *at least every two years*

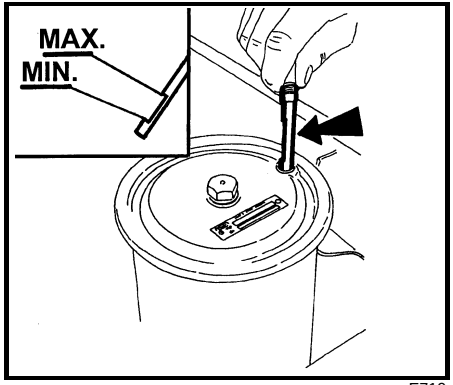


G715

REINSTALLATION OF AIR CLEANER CARTRIDGES

Reinstall the air cleaner cartridges in reverse order.

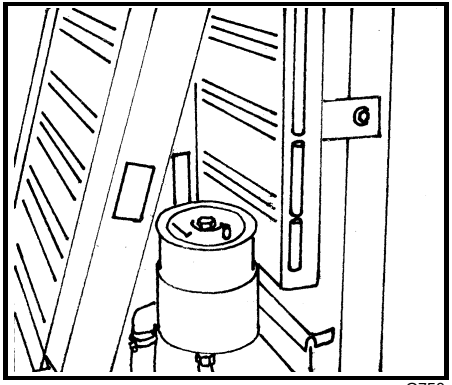
During this operation pay attention to:
- cleanness of contact surfaces,
- cartridges may not be deformed and may not vibrate after installation,
- perfect tightness of the whole cleaner shall be ensured after closed with the lid,
- after completion of maintenance of the dry air cleaner restore function of the indicator of clogging.



E719

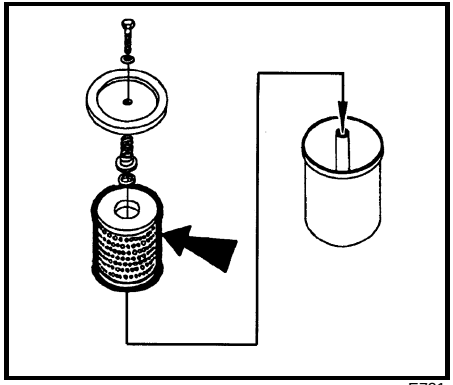
CHECK OF OIL LEVEL IN HYDROSTATIC STEERING TANK

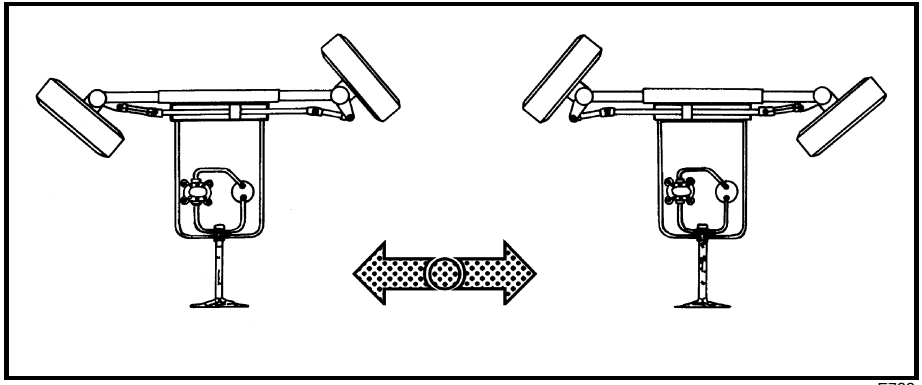
Carry out checks every day before start of operation, on the tractor standing on a horizontal surface. Open the bonnet, screw out the gauge rod, wipe if with a cloth and screw in. The screw it again and check the level that shall not be under the lower gauge mark. Refill oil as necessary after removal of the tank lid.


G750

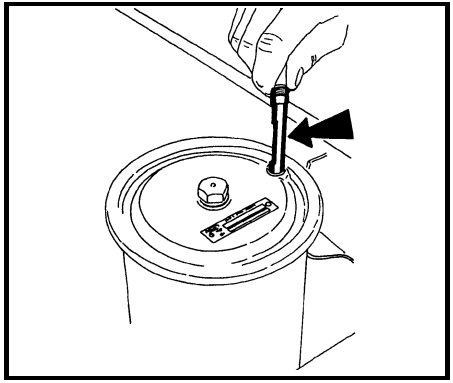
REPLACEMENT OF OIL AND HYDROSTATIC STEERING FILTRATION CARTRIDGE

1. Put a suitable container under the hydrostatic steering tank.
2. Screw out the drain screw in the tank bottom
3. Drain oil.
4. Screw out the tank lid nut.
5. Remove hydrostatic steering tank lid.
6. Replace the filtration cartridge.
7. Reinstall the tank lid.
8. Lok its position by the nut.
9. Screw in the drain screw.
10. Disconnect both hoses from the working cylinder and drain tube from the tank (put containers under working cylinder hoses and under the drain tube).
11. Start the engine and at idle speed (max. 10 sec) turn the steering wheel 2-3 times to both sides to push off oil from the control unit and piping.
12. Secure the tractor against any movement and lift the front axle.
13. Put a container under the working cylinder and rotate (manually) wheels to push out oil from the working cylinder.
14. Reconnect all joints.
15. Fill the tank with oil and bleed the hydrostatic steering circuit.


E721



E722

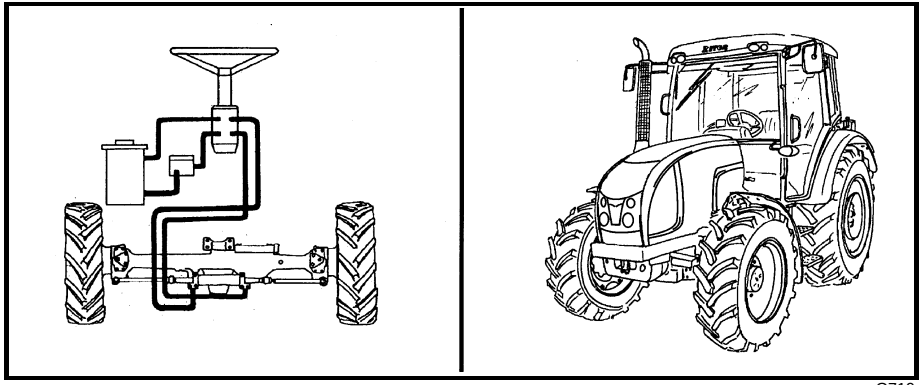


E723

BLEEDING OF HYDROSTATIC STEERING HYDRAULIC CIRCUIT

1. Secure the tractor against any movement and lift the front axle.
2. Start the engine let it running at idle speed for approx. 1 minute.
3. At idle speed turn the steering wheel to both sides several times
4. At maximum speed of the engine turn the steering wheel alternately 3 times slowly and quickly up to the limiting stops of the wheels.
5. Stop the engine.
6. After completion of bleeding check and refill (if necessary) oil up to the gauge rod mark. Check tightness of all connections and lines of the hydrostatic steering hydraulic circuit.
7. Lower the front axle.

With all bleeding operations on the hydrostatic steering watch oil level in the tank to prevent suction of air into the steering system.



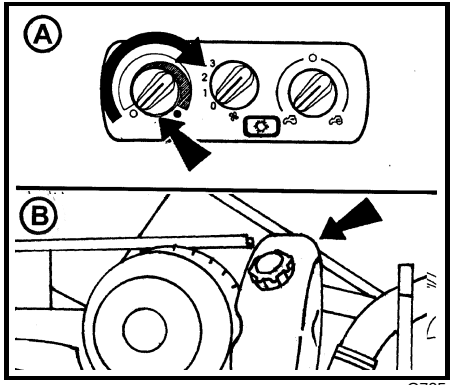
G719

REPLACEMENT OF HYDROSTATIC STEERING HOSES

The hoses shall be replaced after four years from the date of their manufacturing (the date can be found on their surface) or after 3,500 Mh of the tractor or in case that any traces of their damage are found (weeping of a hose, local bulging, leakage of working medium around terminals and from the surface, damaged jacket by rubbing against metal frame, damaged outer braid of low-pressure hoses).

In case of a failure of the pump or if the engine is in standstill, steering ability is preserved, however, the steering wheel shall be manipulated with much higher effort. It is possible to drive with the tractor to the nearest repair shop at reduced speed.

The steering wheel shall not be hold in any side limit position for a longer period (max. 20 sec), otherwise this causes excessive warming of oil in the hydrostatic steering circuit.



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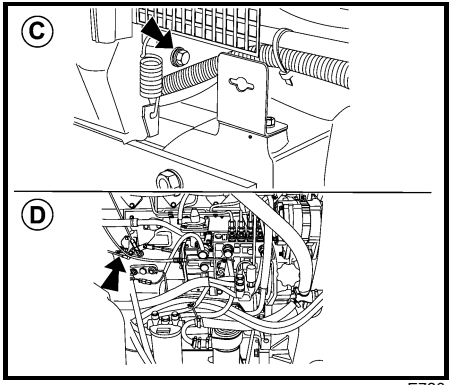

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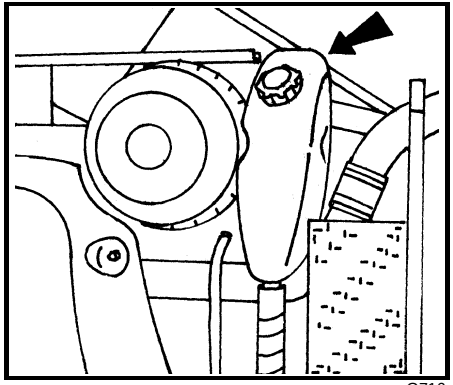
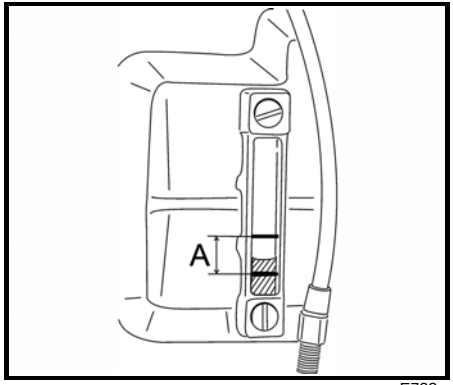

G716

REPLACEMENT OF COOLING FLUID

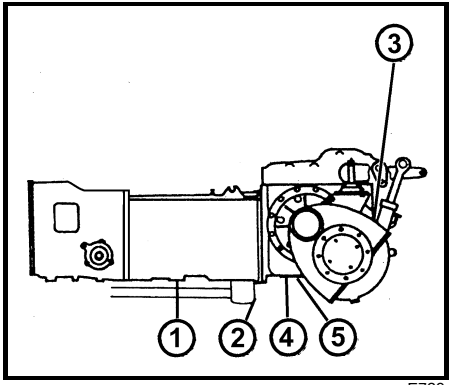
Follow this procedure:

1. Open the heating circuit cock (A) and release the overpressure lid on the expansion tank (B)
2. Drain cooling fluid from the tank (C). The drain screw is accessible after removal of the left part of the bonnet.
3. Drain cooling fluid from the block of the engine (D). The drain cock is accessible after removal of the right part of the bonnet.
4. After drainage of cooling fluid close the screw and cock (let the heating circuit cock open).
5. Fill the cooling system with an anti-freezing mixture.
6. Start the engine and let it running for approx. 1 minute.
7. Refill anti-freezing mixture in the expansion tank up to the upper gauge mark MAX.
8. Close the expansion tank by the overpressure lid.

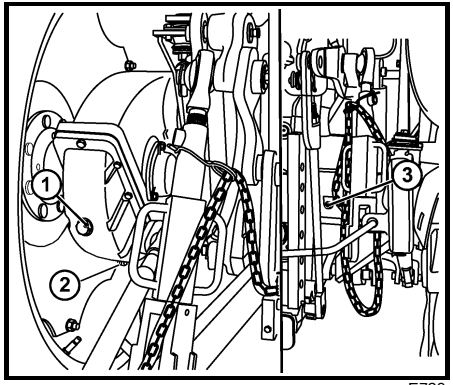
Replace anti-freezing mixture after two years at the latest.



E723a



E729



E730

CHECK AND REPLACEMENT OF OIL IN GEARBOX, AXLE DRIVE AND REAR AXLE PORTALS

Oil level in the gear mechanisms is checked oil gauges, whitch is located in left rear part of the gearbox case.

A - Standard oil filling

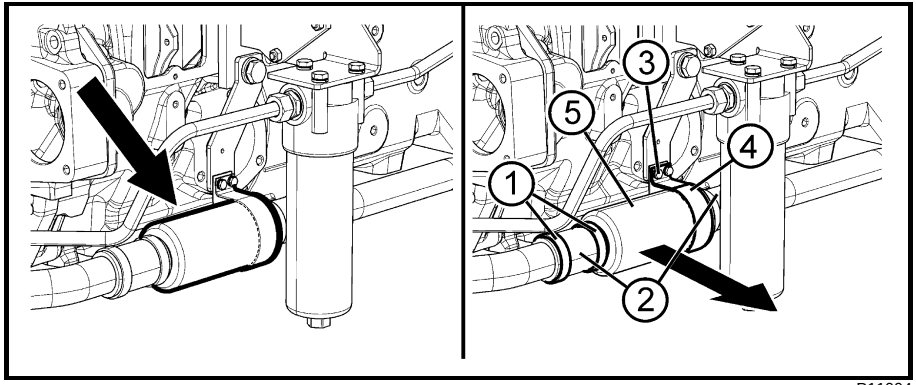
Carry out checks when the engine is stopped.

DRAINAGE AND INSPECTION HOLES

1. Drain plug of the gear mechanism.
2. Oil drain plug from the outlet for the front driving axle.
3. * Brake chamber inspection screw.
4. Plug for drainage of oil from the axle drive case.
5. Drain plugs of the left and right brake chambers.

1. * Inspection and oil filling screw of the axle shaft case (applicable for standard adjustment of the portal).
2. Plug for draining of oil from the axle shaft case.
3. * Inspection screw of the brake chamber.

** After screwing out the inspection screw the level of oil shall reach lower edge of the inspection hole.*

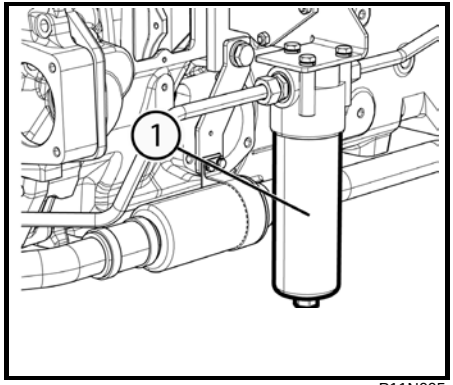


P11004

CHANGING SUCTION FILTER

Suction filter is located on the left side of gearbox. To change the filter, empty the oil from gearbox.

Oil flows out of the hoses while changing the filter. Capture the oil in a clean container.
Loosen cuffs (1) on both sides and pull off the hoses (2). Remove the bolts (3), take off the cuff (4), and remove the filter (5). To place a new filter, proceed contrariwise. Put the oil which has flown out back to gearbox (this holds if it is necessary to change the filter outside the period recommended for changing the filter and oil.



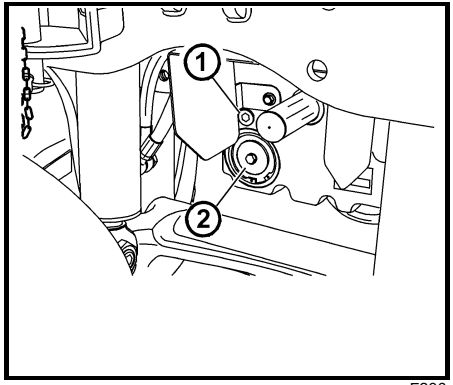
P11N005

CHANING INSERTION OF OIL CLEANER

Oil cleaner is located on the left side of gearbox.

Before changing the insertion of oil cleaner, place a suitable container under the tractor to capture dripping oil.

1. screw out cleaner body (1)
2. change the filter insertion
3. place the cleaner body back in its original position



F206

∗ FRONT OUTPUT SHATF

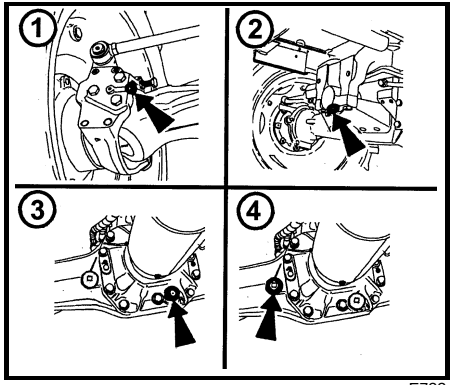
The inspection and oil filling plug is located on the front output shaft face.

Note: A plug or hollow screw is installed according to the particular design.

A hollow screw of the oil cooler hose is installed instead of the inspection and filling plug on the front output shaft with standard direction of rotation. Carry out checks after removal of the hollow screw.

After screwing out the inspection plug the level of oil shall reach the lower edge of the inspection hole.

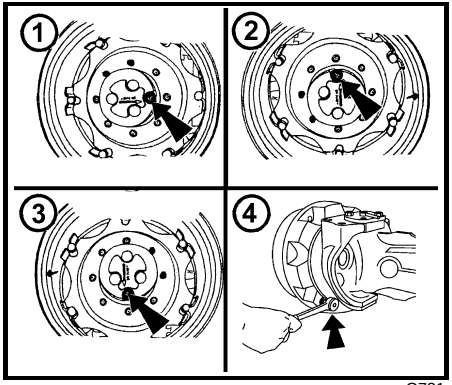
With replacement of oil it is necessary to clean the screen oil cleaner (2). This screen-type cleaner is accessible after removal of the retaining ring and the lid.



E733

LUBRICATION AND FILLING POINTS OF THE FRONT DRIVING AXLE

1 - Steering knuckle lubricator.
2 - Sliding bearing (2x) of the front driving axle.
3 - Gearbox oil drain hole.
4 - Oil filling and inspection hole on the gearbox (after screwing off the inspection screw the oil level shall reach the lower edge of the inspection hole).

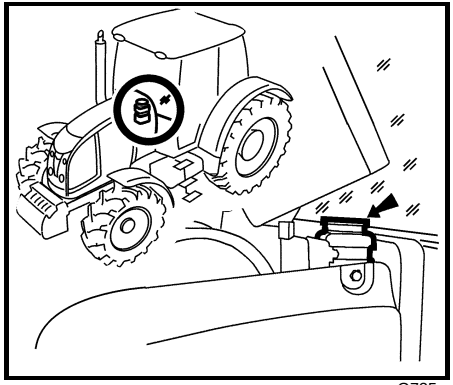


G731

OIL FILLING, INSPECTION AND DRAIN HOLES OF FRONT WHEEL REDUCERS

Carry out check, filling and draining of oil through one hole after turning the reducer as illustrated.

1. Check of oil level – the hole is in the reducer horizontal axis (after screwing off the inspection screw the oil level shall reach the lower edge of the inspection hole).
2. Filling of oil – the hole is on the top.
3. Drainage of oil from a non-braked axle – the hole is in the bottom.
4. Drainage of oil from a braked axle – the hole is in the bottom.

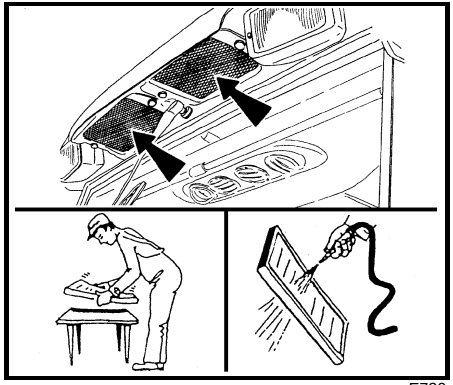


G735a

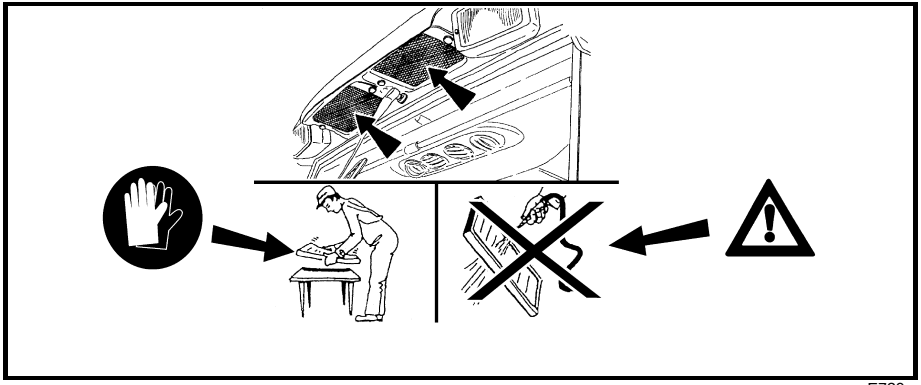
REFILLING OF BRAKE FLUID

The tank is located on the left side of the tractor in front of the cabin and accessible after lifting of the bonnet.
Keep level of brake fluid within 3/4 (max. height) and 1/2 (min. level) of the tank volume.

When manipulating with brake fluid observe strict cleanness. Check level every day before you drive out.



E730



E730a

CLEANING OF HEATING SYSTEM FILTERS

Carry out regeneration of filters, installed under covering grilles above front glass outside the cabin, as necessary according to the degree of clogging:

– by dusting,

– by purging using compressed air.

Carry out checks of clogging every day. Replace strongly clogged filters.

The safety cabin of the tractor is not equipped with any special filters of air sucked into the cabin.

The filters do not protect the driver against effects of aerosols and other harmful substances!

***AIR FILTER WITH ACTIVE CARBON**

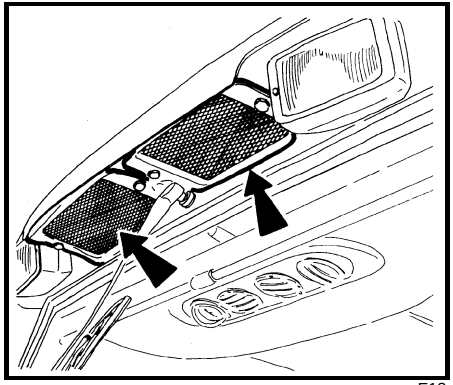
Filters with active carbon are installed instead of the standard dust filter and replacement is carried out in the same way as in the common filters. The filter should be located with the white surface on the grid.

The filter is used only when spraying pesticides, after the work the paper filter should be reinstalled, because the carbon filter would be choked with dust after a short period of time. Upon work the re-circulation controller should be in the position “air is drawn into from the outside”.

The fan controller should be in the position “fan maximum work”.

- *WARNING: The filter does not provide full protection against toxic substances.*
- *When handling the filter, wear protective gloves.*
- *Don’t clean the filter; don’t flush it with compressed air.*

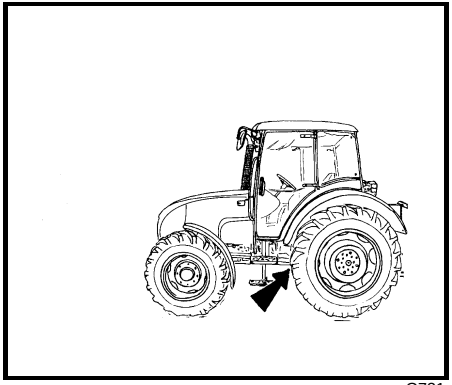
DANGER: The filter with active carbon should be replaced after every 200 hours or 36 months (manufacture date is stated on the filter). If you can smell pesticides in the cabin, replace the filter immediately and check the cabin sealing. Used filters should be disposed in special disposal centres.



E13

INSTRUCTIONS FOR INSTALLATION OF THE CARBON FILTER

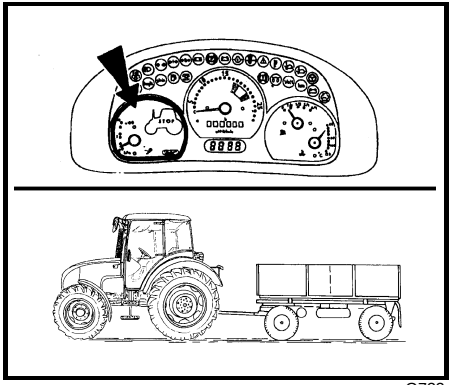
1. Remove the worn out filter from the air duct neck.
2. Remove the protective package of a new filter.
3. Put the filter to the air duct neck so that the air passage direction corresponds to the passage direction through the filter in accordance with the arrow on the filter. The inlet air should pass to the white duct filtration layer first.
4. Check proper sealing of the filter.
5. Fix the filter.



G731

DRAINAGE OF CONDENSATE FROM AIR ACCUMULATOR

Drain condensate by pulling the ring to deflect the bleeding valve.
The valve is installed on the air accumulator bottom.

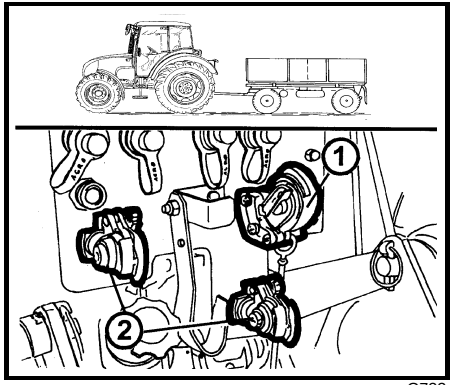


G732

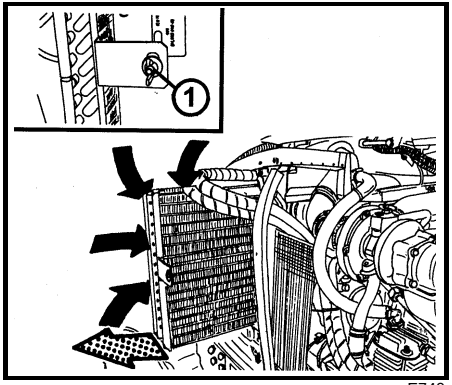
CHECK OF TIGHTNESS OF AIR SYSTEMS

– Fill the air accumulator up to the maximum pressure (730 ± 20 kPa).
– When the engine is stopped, pressure may not drop by more than 10 kPa.

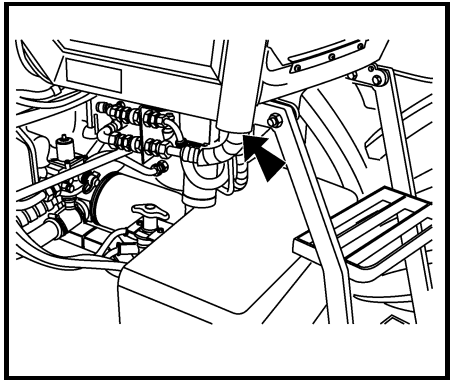
Carry out checks every day before you drive out with a trailer or semi-trailer!
A warning light on the dashboard lights on in case of a drop of pressure in the brake system under 450 ± 30 kPa!



G733



E740


E741

WORKING PRESSURE OF AIR BRAKES

In case of a single hose (1) and double-hose (2) designs, air pressure on the double-hose coupling head (red capsule) is 740 ± 20 kPa and on the single-hose coupling head is 600 ± 20 kPa max. (at-the moment when pressure regulator relieves the compressor by blowing off).

MAINTENANCE OF THE AIR-CONDITIONING (A/C) SYSTEM

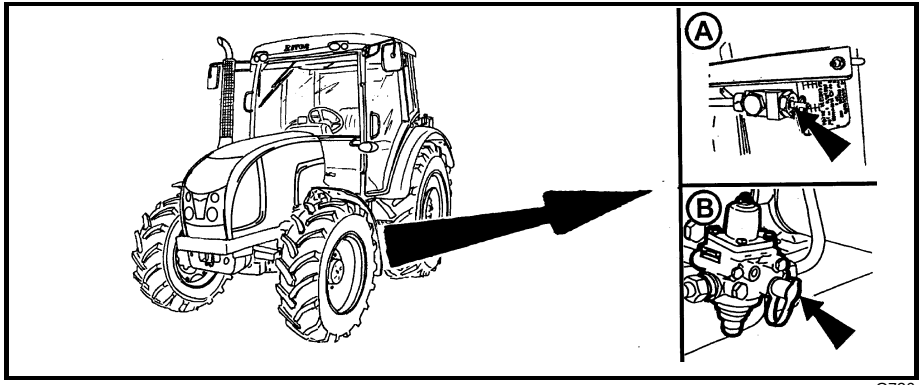
⚠ *Cleaning of the A/C condenser is the most important part of maintenance of this equipment (it is installed in front of the engine radiator).*

Clogged A/C condenser reduces effectiveness of cooling of the A/C system as well as cooling of the engine.

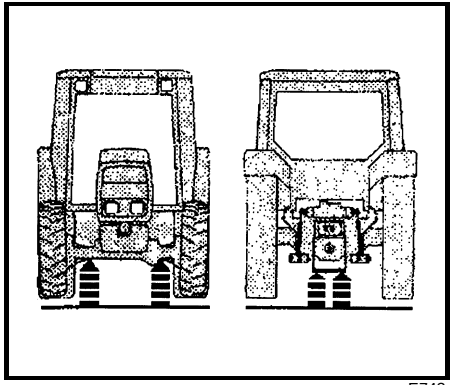
Open the bonnet, screw off the nut (1) and slide the radiator to the side and purge it using compressed air or flush it pressurised water (against direction of drive).

Then slide the radiator back to its position and fix it properly. Pay attention to correct arrangement of hoses to the oil cooler.

With correct function of the A/C system, water condensates in the roof space of the cabin. Condensate is drained by hoses in columns of the cabin and flows out in lower ends of the columns. Therefore pay attention to the hoses that should not be clogged to drain condensate.



G736



E743

MAINTENANCE AND CARE FOR TYRES

Check regularly outer surfaces of the tyres and their sides for defects in side walls and at tyre beeds and damaged tyre skeletons.

⚠ *Take out of service tyres with any defects.*

INFLATION OF TYRES

Basic values of recommended inflation are specified in the chapter “Essential technical parameters”. Check pressure regularly before you drive out if the tyres are cold. Use the pressure regulator (B) for inflation; this device is used for balancing of pressure, inflation of tyres and as a safety valve. Screw off the wing nut on the pressure regulator (or remove the rubber cap) and screw in a hose for inflation of tyres instead. Screw in the hose up to the end of its thread to squeeze the backflow valve. In case that there is maximum pressure 0.6MPa (or 0.7MPa with double-hose brakes) in the air accumulator, tyres cannot be inflated. In such case it is necessary first to reduce pressure using the valve for draining of condensate that is installed on the air accumulator bottom (A). After inflation of tyres it is then necessary to screw on the wing nut onto the pressure regulator (or put back the rubber cap).

LAYING BY THE TRACTOR

In case that the tractor has to be put out of operation for a longer period (storage), support the tractor and reduce pressure in tyres for minimum (the wheels may not be in contact with ground).

ADJUSTMENT

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∗Adjustment of pneumatic control of PTO clutch with mechanical connection	177
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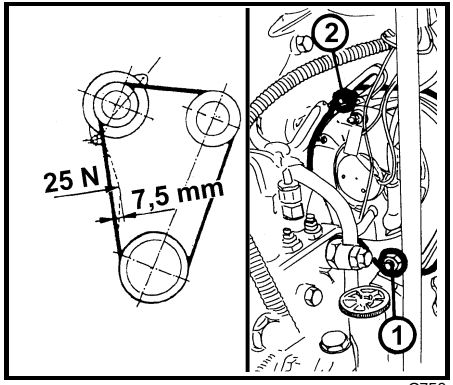
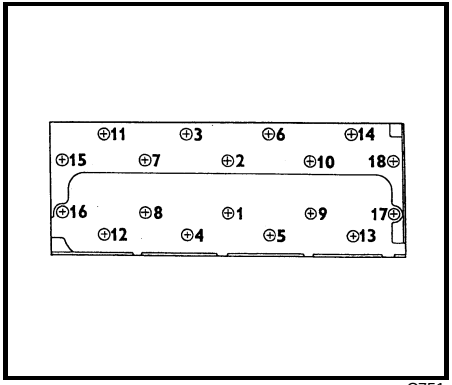
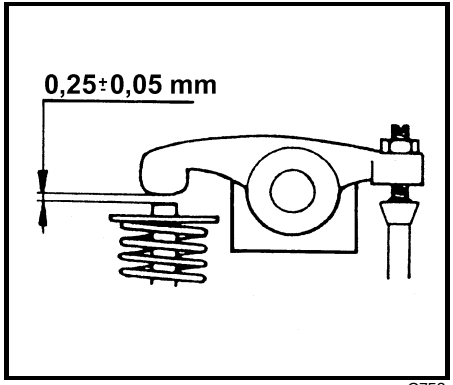
Almost all the following works require certain experience and more exacting service and diagnostic equipment. That's why we recommend to do the works at specialized or authorized workshops.



C750



C751



C752

TENSIONING OF ENGINE BELT

At correct tensioning of the belt, belt deflection must be 5,5 mm after affecting one belt by force of 25 N.

Adjust the belt tension to prescribed value after loosening of the alternator fixing screws (1, 2).

***TENSIONING OF AIR-CONDITIONING COMPRESSOR BELT**

At correct tensioning of the belt, belt deflection must be 7,5 mm after affecting one belt by force of 25 N.

Adjust the belt tension to prescribed value after loosening of the fixing screws of the air-conditioning compressor.

TIGHTENING OF CYLINDER HEADS

Cylinder heads are tightened at cold engine in the prescribed sequence.

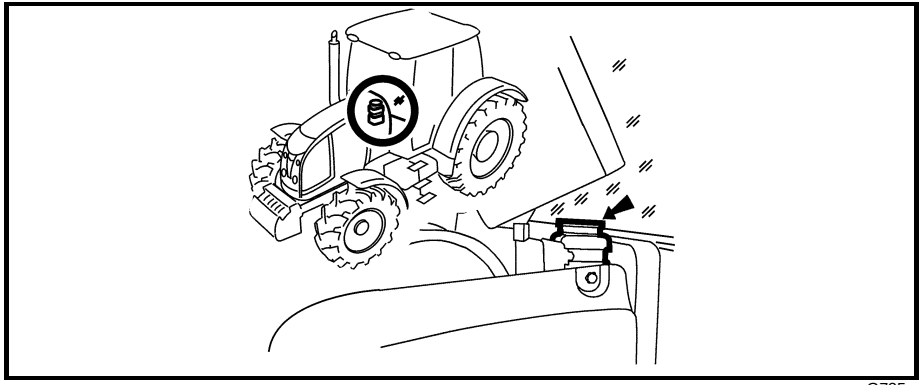
Torque	160 - 180 Nm
Valve clearance	0,25 ± 0,05 mm

VALVE CLEARANCE ADJUSTMENT

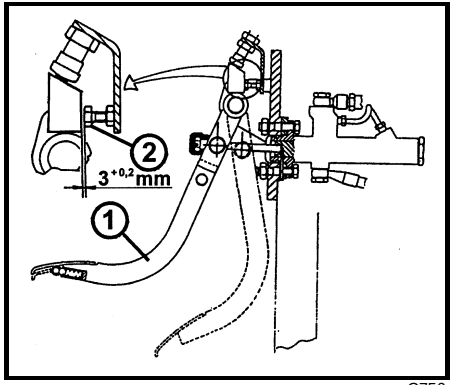
Engine valve clearance is adjusted at cold engine. The correct valve clearance at suction and exhaust valves is 0,25±0,05 mm.

Change of rocker arm movement:

Change of rocker arm of cylinder No.:	Adjusted valve at cylinder No.:
1.	4.
3.	2.
4.	1.
2.	3.



G735a



C756

BLEEDING OF TRACTOR BRAKE SYSTEM

Bleeding of the tractor brake system always do in the following order:

1. pressure air brake system for trailers
2. rear wheel service brakes
3. hydraulic brakes of trailer

Bleed the pressure air system for trailers and the rear wheel service brakes at unlatched brake pedals, separately for each wheel.

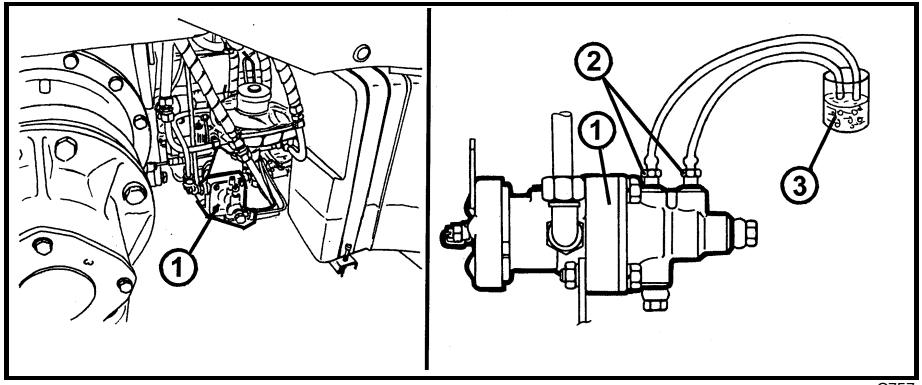
Bleed the hydraulic brakes of trailer at latched brake pedals.

During bleeding observe brake fluid level in the equalizing tank to avoid suction of air into the system.

After each two years it is necessary to replace brake fluid in the entire brake circuit.

Important:

When bleeding the pressure air system for trailers and the rear wheel brakes, one pedal (1) must be always depressed by $7,5^{+0,5}$ mm - measured to the main brake valve piston rod i.e. $3^{+0,2}$ mm at the adjusting screw (2) and the second pedal is used for bleeding. For keeping the right distance, insert the flat gauge of corresponding thickness, i.e. $3^{+0,2}$ mm, between the pedal (1) and the adjusting screw (2).

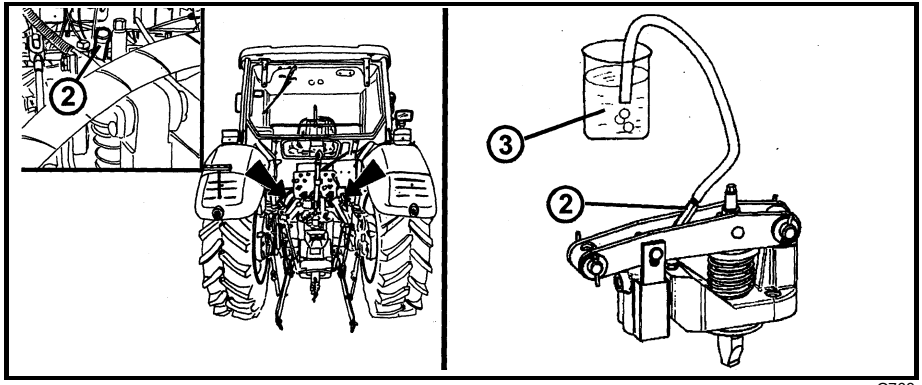


C757

1. BLEEDING OF PRESSURE AIR BRAKE SYSTEM FOR TRAILERS

Bleed he system at working air pressure 730±20 kPa in the following way:

- Add missing volume of brake fluid into the brake fluid tank up to the maximum level.
- Remove the plugs of the vent screws (2) of trailer control valve (1) located at the right-hand side of the tractor between the fuel tank and the rear half-axle.
- Slide hoses on the screws and put the other hose ends at the bottom of a transparent tank (3) partially filled with brake fluid. Place the tank minimum 300 mm above the vent screws. The screws must be permanently under pressure to avoid aerating of the brake system through the screw threads.
- Loosen the bleeding screws maximum by 1/4 turn.
- Bleeding process is the same as mentioned in - Important (see page 178).
- Fully depress the pedal that is not blocked by the gauge and tighten the adjusting screw.
- Release the brake pedal and repeat the process, until air bubbles cease escaping from the hose.

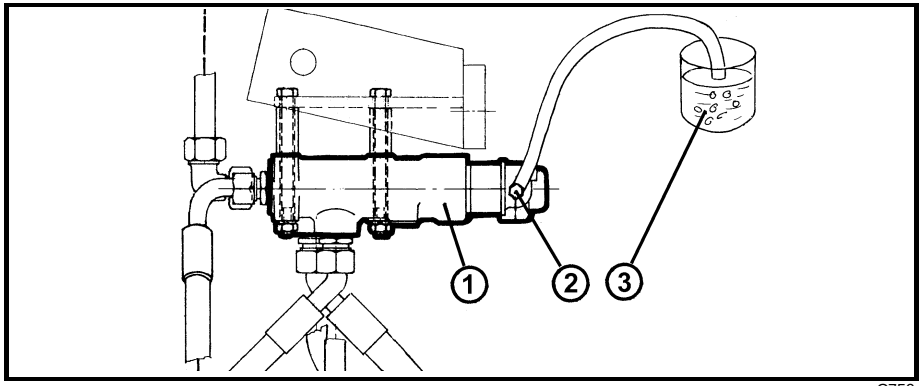


C760

2. BLEEDING OF REAR WHEEL BRAKES

Bleed the system in the following way:

- Check brake fluid level in the equalising tank. Add missing volume of brake fluid into the brake fluid tank up to the maximum level.
- After removing of the rubber cap, slide a hose on the vent screw (2) of the brake cylinder and put the hose end at the bottom of a transparent tank (3) partially filled with brake fluid. The vent screw must be permanently under pressure to avoid aerating of the brake system through the screw threads. Place the tank minimum 300 mm above the vent screw at this operation.
- Loosen the bleeding screws maximum by 1/4 turn.
- Bleeding process is the same as mentioned in - Important (see page 178).
- Fully depress the pedal that is not blocked by the gauge and tighten the adjusting screw.
- Release the brake pedal and repeat the process, until air bubbles cease escaping from the hose.

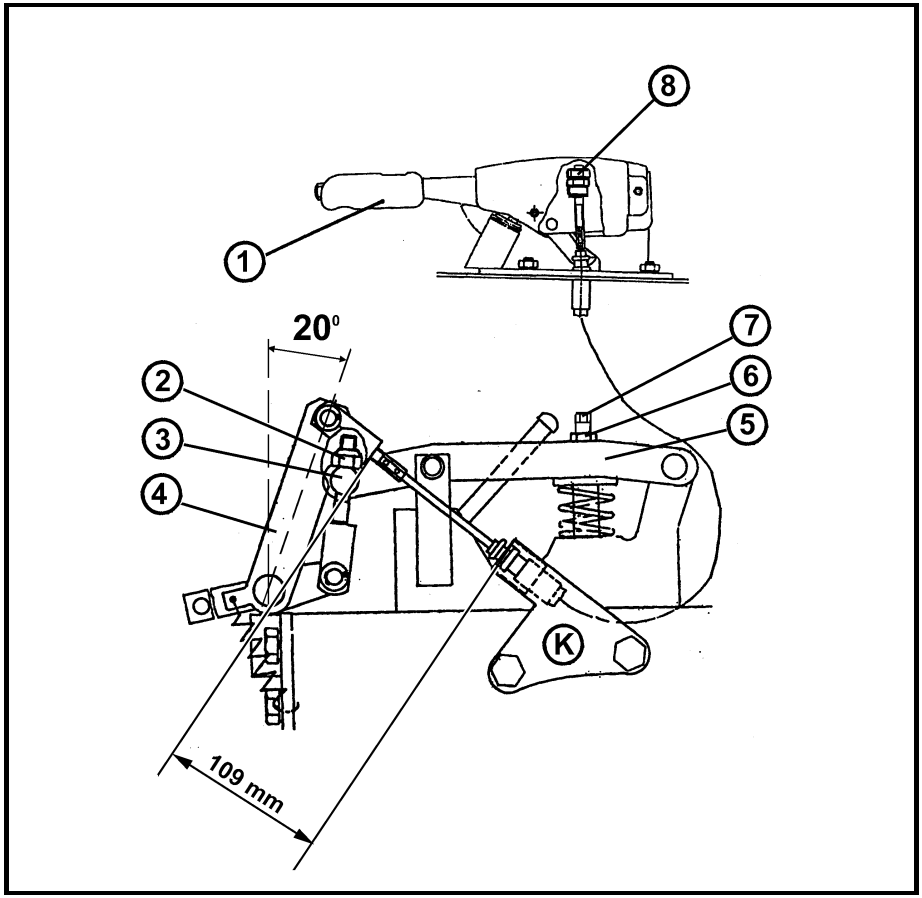


C759

3. BLEEDING OF HYDRAULIC BRAKES OF TRAILER

Bleed the system in the following way:

- Add missing volume of brake fluid into the equalising tank up to maximum level.
- Remove plug of vent screw (2) of hydraulic trailer control valve (1) located at the left-hand front support of the cab silent-block.
- Slide a hose on the screw and put the hose other end at the bottom of a transparent tank (3) partially filled with brake fluid. Place the tank minimally 300 mm above the vent screw. The vent screw must be permanently under pressure to avoid aerating of brake system through the screw threads.
- Loosen the bleeding screws maximum by 1/4 turn.
- Fully depress the latched brake pedals to the stop and tighten the adjusting screws.
- Release the brake pedals and repeat the process, until air bubbles cease escaping from the hose.



C764

CHECK AND ADJUSTMENT OF SERVICE AND PARKING BRAKES

Adjustment must be done in the following steps:

1. service brake adjustment
2. parking brake adjustment

Another way is not possible. Also only separate adjustment of either service or parking brake is not possible. Adjusting operations depend on one another.

SERVICE BRAKE ADJUSTMENT

Secure the tractor against movement!

- Lift the tractor rear wheels.
- Loosen the nuts (2), nuts (6) and nuts (8).
- Loosen the screw (7).
- Let your helper turn one wheel and simultaneously tighten the screw (5) until the wheel starts to be braked.
- Loosen the screw (7) by 5/6 turn, check, if the wheel can turn freely and secure the screw (7) with the nut (6).
- Adjusting process is the same at the right-hand and left-hand sides.

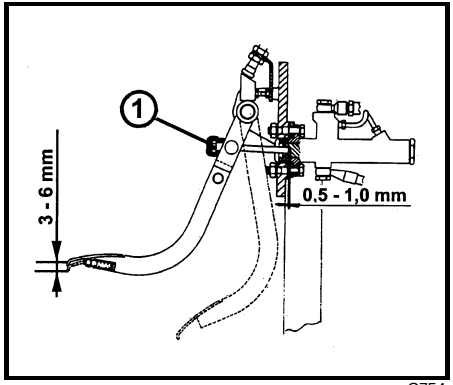
If asymmetry of brake effect appears between the left and right brakes, it is necessary to loosen the adjusting screw (7) of the brake with bigger brake effect, until the brake effects of the right and left wheels are equal. But the screw can be loosened maximum by 1/2 turn.
If asymmetry of brake effect is not eliminated even after such adjusting, the tractor brakes must be adjusted in an authorized service.

PARKING BRAKE ADJUSTMENT

- Set the lever (4), so that the distance between the bracket (K) and the fork face at the level (4) might be 109 mm (so that the lever (4) might form angle 20° with vertical plane)
- Screw the nut (2) to the seating surface of the pin (3) without play and without pre-stressing – it must not come to depressing of the arms (5).
- Adjusting process is the same at the right-hand and left-hand tractor sides.
- By means of the nuts (8) adjust the Bowden cable of the parking brake lever so that at preservation of angle 20° at the lever (4), the parking brake lever could be without play.
- Rise and lower the parking brake lever (1) several times. You will eliminate possible mutual plays among the parts by this way.
- Check adjustment of the parking brake system, in case of necessity re-adjust, and check tightening of all locking nuts (6), (8)

If asymmetry of brake effect of the parking brake appears between the left and right brakes, it is necessary to loosen the upper adjusting nut (6) of the brake with bigger brake effect until the brake effects of the right and left wheels are equal. But the nut (2) can be loosened maximally by 1,5 turn.
If asymmetry of brake effect is not eliminated after such adjusting, the tractor brakes must be adjusted in an authorized service.

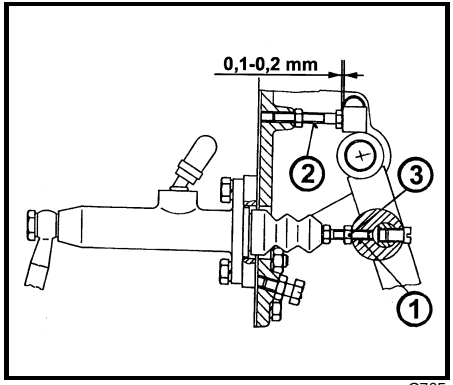
Note: There are adjusting openings in the tractor cab floor for making easy the brake.



C754

ADJUSTMENT OF FREE TRAVEL OF BRAKE PEDALS

Correct play between the piston rod of brake pedal and the piston of main brake valve is 0,5-1,0 mm (3 - 6 mm when measured at the edge of the brake pedals at unlatched pedals). Adjust the play at unlatched pedals and after releasing of the adjusting nut (1), in which the piston rod is screwed.

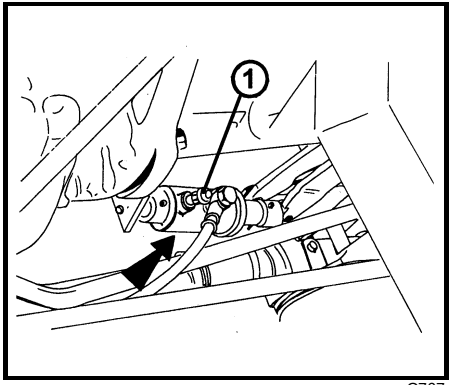


C765

ADJUSTMENT OF FREE TRAVEL OF CLUTCH PEDAL

Correct play between pedal piston rod and main cylinder piston is not adjusted - play is adjusted by the producer.

Mutual position between the piston rod and piston rod eye (1) is adjusted so that the piston rod might be maximally pulled out from the cylinder and simultaneously the play between the pedal and the upper stop screw (2) might be 0,1-0,2 mm. Subsequently the piston rod is fixed with the nut (3) to piston rod eye. Check eventual deformation of dust cap after adjustment, in case of deformation correct it by hand.



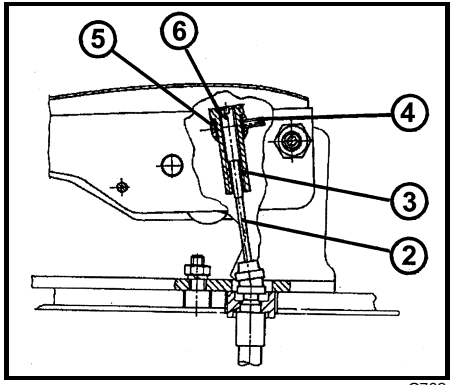
C767

BLEEDING OF HYDRAULIC CLUTCH CIRCUIT

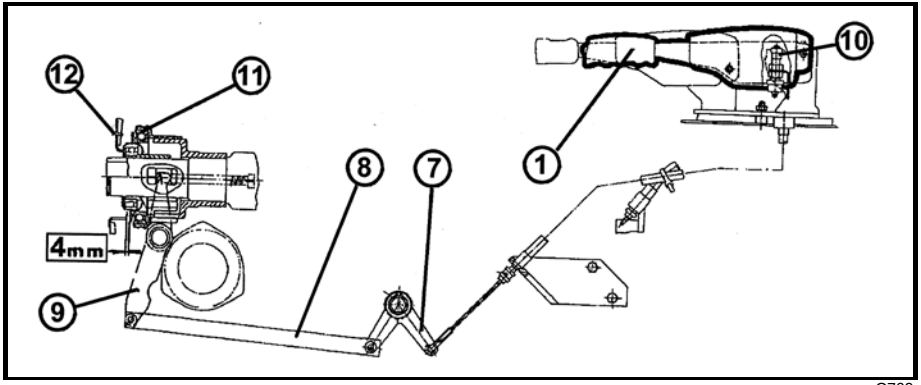
Bleed the clutch hydraulic circuit in the same way as rear brake system bleeding. The vent screw of clutch hydraulic circuit is located at the clutch control cylinder (1).

Add only fresh brake fluid into the brake fluid tank, which is common for both brake and clutch circuits.

Brake fluid must be replaced in the entire brake circuit including the clutch hydraulic circuit after each two years of operation.



C768



C769

ADJUSTMENT OF MECHANICAL CONTROL OF PTO CLUTCH

It works through the release bearing on the PTO clutch levers.

1. Lever
2. Bowden cable
3. Adjusting nut
4. Adjusting screw
5. Pin
6. Bowden cable bolt
7. Two-arm lever
8. Draw rod
9. Shaft with lever
10. Electric switch
11. Bearing
12. Release levers of travel clutch

ADJUSTMENT PROCEDURE

1.Remove the plastic cover of the lever of hand control of the PTO clutch.

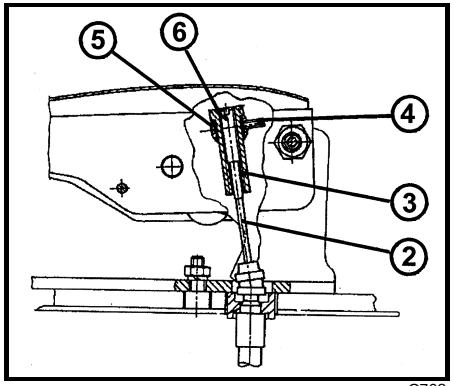
2.Loosen the adjusting screw (4). This way the adjusting nut (3) is released.

3.Adjust the play between the bearing (11) and the clutch levers (12). Perform the adjustment with the adjusting nut (3) so that the play between the bearing (11) and the clutch levers (12) might be 4 mm; at the same time it must not decrease under 2,5 mm. During adjusting hold the Bowden cable bolt (6) in the adjusting nut (3) so that it could not come to its turning together with the adjusting nut (3) and so to plying apart of the Bowden cable (2).

4.After adjusting secure the adjusting nut (3) with the adjusting screw (4). Check, that seating surface of the adjusting nut (3) is seated at upper surface of the pin (5).

5.By shifting of the lever (1) to the disengaged position, the indicator lamp at the dashboard must be “on”.

6.When the release levers of the travel clutch are adjusted properly, the control force at the lever (1) is max. 200 N. If the force increases non-proportionally (ca 2 times) it is necessary to adjust the release levers of the travel clutch.



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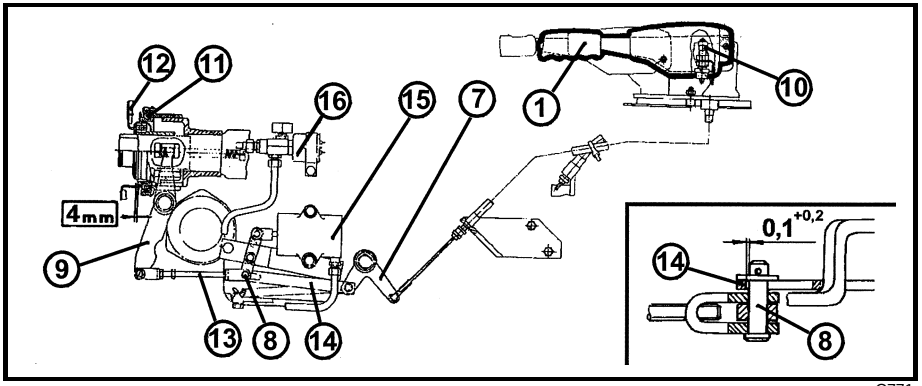
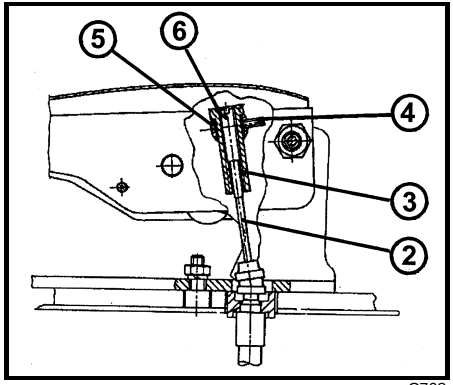


C771

***ADJUSTMENT OF PNEUMATIC CONTROL OF PTO CLUTCH WITH MECHANICAL CONNECTION**

1. Lever
2. Bowden cable
3. Adjusting nut
4. Adjusting screw
5. Pin
6. Bowden cable bolt
7. Two-arm lever
8. Pin
9. Shaft with lever
10. Electric switch
11. Bearing
12. Release levers of travel clutch
13. Adjusting draw rod
14. Draw rod
15. Air cylinder
16. Electromagnetic valve

ADJUSTMENT



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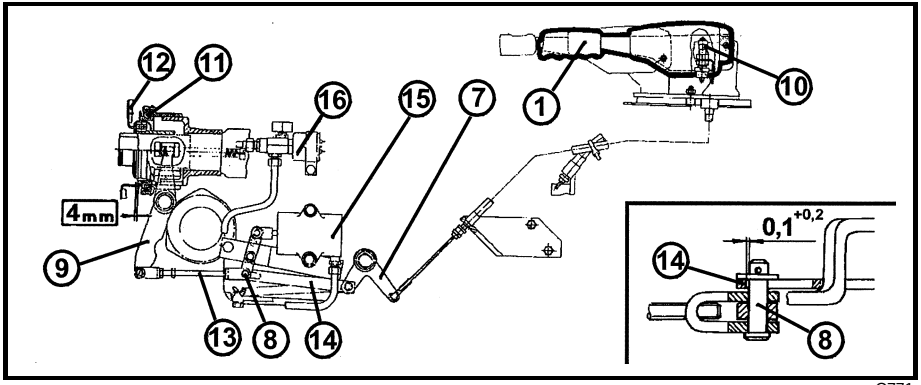


C771

Adjustment procedure:

1. Remove the plastic cover of the lever of hand control of the PTO clutch.

2. Adjust the play between the bearing (11) and the clutch levers (12). Perform the adjustment with the draw rod (13) so that the play between the bearing (11) and the clutch levers (12) might be 4 mm; at the same time it must not decrease under 2,5 mm.

3. The air cylinder piston (15) must be in the basic stop position during adjustment.

4. Loosen the adjusting screw (4). So the adjusting nut (3) is released. With the adjusting nut (3) adjust the play between the pin (8) and opening of the draw rod (14) to the value $0,1^{+0,2}$ mm. During adjusting hold the Bowden cable bolt (6) in the adjusting nut (3) so that it could not come to its turning together with the adjusting nut (3) and so to plying apart of the Bowden cable (2).

5. After adjusting secure the adjusting nut (3) with the adjusting screw (4). Check, that seating surface of the adjusting nut (3) is seated at upper surface of the pin (5).

6. Check the play between the bearing (11) and the clutch levers (12); eventually readjust with the draw rod (13).

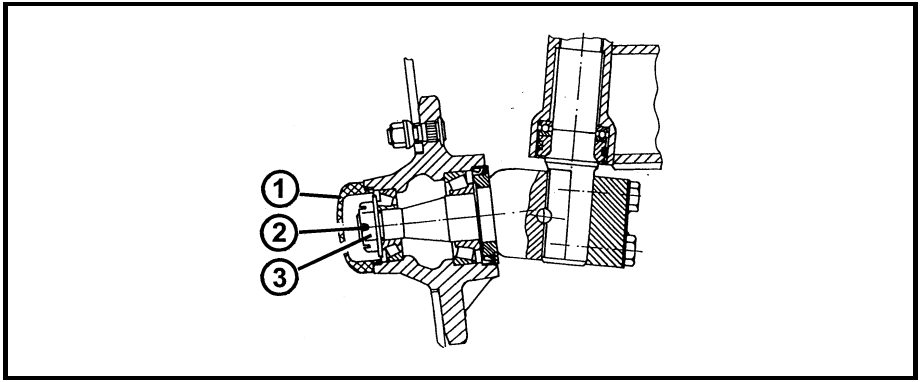
7. After adjusting shift the lever (1), without switching-on of electric current supply to the electromagnetic valve (16), by the force that is needed for releasing of the PTO clutch. After releasing of the lever (1) check adjustment according to points 4., 5. and 6

8. At shifting of the lever (1) to the disengaged position, the indicator lamp at the dashboard must be “on”.

9. When the release levers of the travel clutch (12) are adjusted properly, the control force at the lever (1) is max 120 N, at the electromagnetic valve switch (16) in “on” position and 200 N at the valve in “of” position. If the force increases non-proportionally (up to 2 times) it is necessary to adjust the release levers of the travel clutch.

ENGINE TRAVEL CLUTCH ADJUSTMENT

The travel clutch is designed in such manner that no adjustment is required during the entire service life of clutch plate lining. Full wear of the plate becomes evident by clutch slipping. All the three travel clutch levers must be in one plane and must be in touch with the clutch release sleeve. When replacing the travel clutch plate, adjust the clutch to the following value still at disassembled tractor. Set the travel clutch levers 25 mm from the recess in the clutch cover by means of the nuts. The difference in setting of the levers can be maximum 0,15 mm. Depress the clutch pedal approx. 5 times up to the stop after assembly of the engine with the transmission.

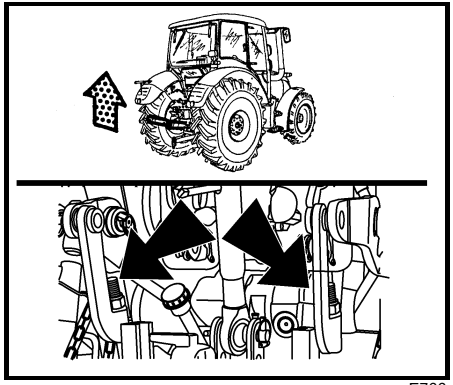


C772

PLAY ADJUSTMENT OF FRONT WHEEL ROLLER BEARINGS AT TRACTOR WITHOUT FRONT DRIVING AXLE

⚠ *Secure the tractor against movement!*

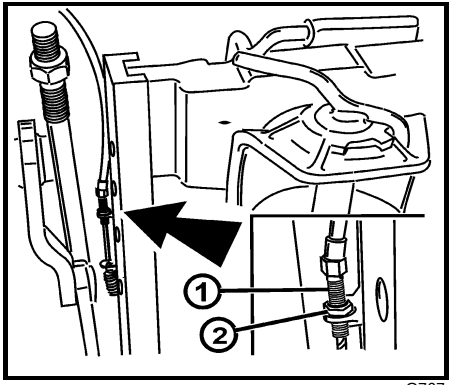
- Lift up and support the front axle.
- Screw off the bearing cover (1).
- Remove the cotter pin (2) from the slotted nut (3).
- Tighten the slotted nut (3) by torque 15 Nm.
- Loosen the nut by 180° and release the bearing by knocking with wooden mallet at the wheel hub.
- Retighten the slotted nut (3) with torque wrench by torque 3-5 Nm. It must be possible to turn the wheel freely without any evident play but without any evident resistance. (Hub sealing resistance must be taken into consideration)
- Lock the slotted nut with a new cotter pin.
- Screw in the bearing cover.



E766

ADJUSTMENT OF HITCH FOR SINGLE-AXLE TRAILERS

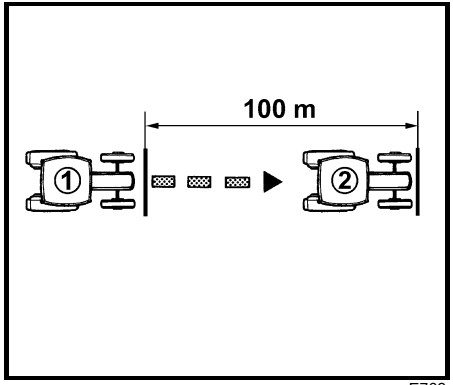
1. Lift the hydraulic arms to their upper (transport) position with selected position regulation (**P**)
2. Screw the nuts on the adjustable pull rods to the guide tube without any play.
3. Further tighten the nuts by 3.5 turns.
4. Check free tilting of the supporting hooks.
5. By repeated lowering and lifting of the hydraulic arms to their transport position verify free run of the engine at idle speed; the safety valve of the hydraulic pump shall not be activated.
6. Then lower slightly the arms.



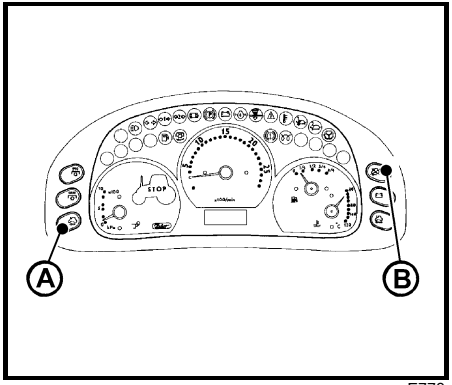
G767

ADJUSTMENT OF BOWDEN CABLE

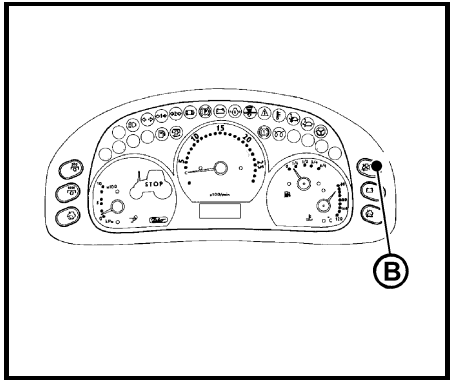
The hitch is in transport position. The Bowden cable shall be stretched so that there is no play on the control lever in the cabin. In case that it is stretched insufficiently, adjust it using the set screw (1). After completion of the adjustment lock the set screw by the lock nut (2).



E769



E770



E771

CALIBRATION OF TRAVEL SPEED OF DIGITAL DASHBOARD

Dashboard is calibrated after the assembly in production plant.
Do the repeated calibration:

- After significant wear of tyres
- When assembling new tyres
- When replacing the dashboard

CALIBRATION PROCEDURE

- On an appropriate area, mark a track of 100 m length
- Inflate the tyres of the tractor to the prescribed pressure, see tables of this Operator´s Manual
- Start the engine
- Locate the tractor at the beginning of the hundred-metre track
- Press the **(A)** and **(B)** buttons simultaneously. Keep the buttons pressed for 7 sec. There will be an acoustic signal and in "**c-n-t**" inscription starts flashing on the display.
- Release both buttons **(A)** and (**B),** "**c-n-t**" inscription stops flashing
- Start the tractor in a balanced speed of 10 $km.h^{-1}$
- After travelling the whole distance of 100 m, stop the tractor on a marked end of the track (see fig. E769)
- Press **(B)** button.
- If calibration has been completed without errors, there will be acoustic signal and "**Pulse**" inscription will appear on the display
- After 2 sec, calibration value will appear on the display.
- After another 2 sec, the calibration is automatically completed, dashboard is calibrated and ready for operation.

MAIN TECHNICAL PARAMETERS

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Contour and tread turning diameters tractors with front drive 203

MAIN TECHNICAL PARAMETERS

MAIN DIMENSIONS OF TRACTOR (mm)			
Tractor model	tractors without front drive	tractors with front drive	Note
Contour length with hitches with lowered front three point hitch	4803	4717	
Contour length with hitches without front three point hitch - without ballast weights in front of tractor mask	3873	3787,5	
- with ballast weights in front of tractor mask	4152	4066,5	
Width over rear fenders	1910	1910	
Height up to muffler top	2622 - 2684	2671 - 2692	According to applied tires
Height up to cab top	2580 - 2633	2600 - 2667	According to applied tires
Ground clearance under front axle housing	470 - 540	385 - 429	According to applied tires
Height of trailer hitch mouth in highest position (mouth centre)	862 - 989	826 -972	According to applied tires
Height of swinging draw bar (to inner bottom surface of clevis)	247 - 376	209- 358	According to applied tires
Height of rear PTO shaft	660 - 770	641 - 764	According to applied tires
Height of front PTO shaft	438 - 544	512 - 600	According to applied tires
Wheel base	2321,5	2236	

MAIN TECHNICAL PARAMETERS

TECHNICAL DATA OF ENGINES OF TRACTORS PROXIMA (TIER II)					
Tractor model		Proxima 70	Proxima 80	Proxima 90	Proxima 100
Engine model		7204	1104	1204	1004
Engine kind		diesel, four stroke with direct fuel injection, turbocharged			
Engine execution		in line, vertical, water-cooled			
Number of cylinders		4	4	4	4
Displacement	cm^3	4156	4156	4156	4156
Bore x stroke	mm	105x120	105x120	105x120	105x120
Rated speed	min^{-1}	2200	2200	2200	2200
Ignition sequence		1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2
Compression ratio		17	17	17	17
Max. overspeed	min^{-1}	2460	2460	2460	2460
Idle speed	min^{-1}	750±25	750±25	750±25	750±25
Net engine power at nominal speed according to EC24	kW	45	53	60	66
Specific fuel consumption at above mentioned power	$g.kW^{-1}.h^{-1}$	257,5	255,5	253,9	254
Engine lubrication		Pressure type with gear-wheel pump			
Max. engine oil consumption after 100 hour running in	$g.kW^{-1}.h^{-1}$	0,7			
Engine oil pressure at rated speed and oil temperature 80°C	MPa	0,2 - 0,5			
Min. oil pressure at 750 RPM and oil temperature 80°C	MPa	0,05			
Max. coolant temperature	°C	106			
Timing		OHV			
Oil cleaner		Full flow for one usage			
Fuel cleaner		One stage with cartridge			

MAIN TECHNICAL PARAMETERS

TECHNICAL DATA OF ENGINES OF TRACTORS PROXIMA (TIER II)					
Engine model		7204	1104	1204	1004
Injection pump type		PP4M10P1f 3420	PP4M10P1f 3419	PP4M10P1f 3423	PP4M10P1i 3735
Nozzle type		DOP 150S 423-4128	DOP 150S 425-4133	DOP 150S 425-4133	DOP 150 S 428 - 4104
Injector opening pressure	MPa	22-0,8			
Timing angle	°	11	11	12	9
Valve clearance measured at cold engine					
- suction	mm	0,25±0,05			
- exhaust	mm	0,25±0,05			

MAIN TECHNICAL PARAMETERS

TECHNICAL SPECIFICATIONS OF ENGINES OF TRACTORS PROXIMA (TIER III)					
Type of tractor		Proxima 70	Proxima 80	Proxima 90	Proxima 100
Type of engine		7205	1105	1205	1005
Engine		compression ignition, 4-stroke cycle, direct fuel injection, turbo-charged			
Engine design		in-line, vertical, water-cooled			
Number of cylinders		4			
Stroke volume	cm^3	4156			
Bore x stroke	mm	105x120			
Nominal speed	min^{-1}	2,200			
Order of injection		1-3-4-2			
Compression ratio		17			
Max. override speed	min^{-1}	2,460			
Idle speed	min^{-1}	800±25			
Net power at nominal speed, measured acc. to EC24	kW	45	53	60	66
Specific fuel consumption at the given power	$g.kW^{-1}.h^{-1}$	270	260	258	255
Max. torque (Mt)	Nm	265	310	351	391
Excess of Mt	%	35	35	35	35
Lubrication of engine		Pressure system with gear pump			
Max. consumption of oil after 100 Mh of engine running-in	$g.kW^{-1}.h^{-1}$	0.7			
Pressure of oil at engine nominal speed and temperature of oil 80 °C	MPa	0.2 - 0.5			
Minimum pressure of oil at 800 rpm and oil temp. 80 °C	MPa	0.05			
Max. temp. of cooling fluid	°C	106			

ESSENTIAL TECHNICAL PARAMETERS

TECHNICAL SPECIFICATIONS OF ENGINES OF TRACTORS PROXIMA (TIER III)					
Type of engine		7205	1105	1205	1005
Valve gear		OHV			
Oil cleaner		full-flow, disposable			
Fuel cleaner		single-stage with replaceable cartridge			
Type of injection pump		PP 4M 10P1i 3782	PP 4M 10P1i 3781	PP 4M 10P1i 3780	PP 4M 10P1i 3775
Type of nozzles		DOP150S428-4104	DOP150S428-4104	DOP150S428-4104	DOP150S428-4104
Injectors opening pressure	MPa	25-0.8			
Angle of injections advance	°	12			
Valve play of cold engine: – inlet valve – exhaust valve	 mm mm	 0.25±0.05 0.25±0.05			

MAIN TECHNICAL PARAMETERS

MAX. ALLOWED LOAD OF FRONT AXLE TRACTORS WITHOUT FRONT DRIVE (kg)			
Travel speed km.h^{-1}	Wheel base (mm)		
	1,495 – 1,500	**1,570 – 1,600**	**1,870 – 1,900**
8	3,000	3,000	2,500
20	2,300	2,300	2,300
30	1,500	1,500	1,500

The load is valid with regard to axle. The allowed load with regard to tires is given in chart „Loading capacity of front tires".

MAX. PERMITTED LOADING OF THE FRONT AXLE TRACTORS WITH FRONT DRIVE (KG)					
Travel speed km.h^{-1}	Wheel track (mm)				
	1,525	**1,610 – 1,620**	**1,680 – 1,690**	**1,760 – 1,770**	**1,825 – 1,835**
8	4,000	4,000	4,000	3,800	3,600
20	3,000	3,000	3,000	2,800	2,600
30	3,000	3,000	3,000	2,800	2,600
40	2,500	2,500	2,500	2,500	2,500

The load is valid with regard to axle. The allowed load with regard to tires is given in chart „Loading capacity of front tires".

MAIN TECHNICAL PARAMETERS

MAX. ALLOWED LOAD OF REAR AXLE (kg)							
Travel speed km.h^{-1}	Wheel base (mm)						
	1,350	**1,425**	**1,500**	**1,575**	**1,650**	**1,725**	**1,800**
8	5,500	5,500	5,500	5,500	5,500	5,200	5,000
20	5,000	5,000	5,000	5,000	5,000	4,500	4,300
30	5,000	5,000	5,000	5,000	5,000	4,500	4,300
40	5,000	5,000	5,000	5,000	5,000	4,500	4,300

The load is valid with regard to axle. The allowed load with regard to tires is given in chart „Loading capacity of rear tires".

MAX. ALLOWED WEIGHT OF SET „TRACTOR + HITCHED IMPLEMENT" (kg)		
Travel speed (km.h^{-1})	Maximum weight of set	
	tractors without front drive	tractors with front drive
8	7000	7400
20	6300	6900
30	5500	6600
40	-	5400

CONDITION OF STEERINGABILITY	
Travel speed (km.h^{-1})	Load of tractor front axle of overall weight tractor + hitched implement (%)
max. 40	min. 25
max. 15	min. 18

MAIN TECHNICAL PARAMETERS

LOADING CAPACITY OF FRONT TIRES												
Tire size	Travel speed											
	40 km.h^{-1}			30 km.h^{-1}			20 km.h^{-1}			8 km.h^{-1}		
	Loading capacity of tires (kg)			Loading capacity of tires (kg)			Loading capacity of tires (kg)			Loading capacity of tires (kg)		
	Tire 1 pc	Axle	Inflating (kPa)	Tire 1 pc	Axle	Inflating (kPa)	Tire 1 pc	Axle	Inflating (kPa)	Tire 1 pc	Axle	Inflating (kPa)
9,5-24	890	1780	280	1110	2220	280	1330	2660	280	1550	3100	280
11,2-24	980	1960	240	1225	2450	240	1450	2900	240	1700	3400	240
11,2R24	1000	2000	130	1250	2500	160	1450	2900	160	1700	3400	150
320/70R24	1000	2000	120	1300	2600	160	1450	2900	150	1700	3400	140
12,4-24	1000	2000	190	1300	2600	200	1450	2900	180	1700	3400	180
12,4R24	1000	2000	100	1300	2600	140	1450	2900	130	1700	3400	120
12,4-28 $_{10\ PR}$	1000	2000	170	1300	2600	180	1450	2900	160	1700	3400	160
13,6R24	1000	2000	90	1300	2600	130	1450	2900	120	1700	3400	110
380/70R24	1000	2000	80	1300	2600	110	1450	2900	100	1700	3400	90
6,00-16	-	-	-	570	1140	340	685	1370	340	800	1600	340
6,50-16	-	-	-	625	1250	320	750	1500	320	875	1750	320
7,50-16	-	-	-	750	1500	280	900	1800	280	1040	2080	280
9,00-16	-	-	-	750	1500	180	1065	2163	220	1240	2480	220
10,00-16	-	-	-	750	1500	225	1150	2300	225	1500	3000	225
7,50-20	-	-	-	750	1500	240	1050	2100	280	1225	2450	280

Note: Loading capacity values are valid for front wheel tread 1495 - 1525 mm and are in accordance with axle loading capacity. At operation on hard surface it is suitable with regard to slipping and galling of tire to raise pressure by 30 kPa.

MAIN TECHNICAL PARAMETERS

LOADING CAPACITY OF REAR TIRES

Tire size	Travel speed											
	40 km.h^{-1}			30 km.h^{-1}			20 km.h^{-1}			8 km.h^{-1}		
	Loading capacity of tires (kg)			Loading capacity of tires (kg)			Loading capacity of tires (kg)			Loading capacity of tires (kg)		
	Tire 1 pc	Axle	Inflating (kPa)	Tire 1 pc	Axle	Inflating (kPa)	Tire 1 pc	Axle	Inflating (kPa)	Tire 1 pc	Axle	Inflating (kPa)
12,4-28 10 PR	1430	2860	280	1790	3580	280	2000	4000	260	2000	4000	210
14,9-28	1500	3000	180	1880	3760	180	2000	4000	150	2000	4000	120
14,9R28	1700	3400	150	1930	3860	160	2000	4000	140	2000	4000	100
16,9-28	1700	3400	170	2000	4000	150	2000	4000	110	2000	4000	90
16,9R28	1700	3400	110	2000	4000	130	2000	4000	100	2000	4000	80
16,9-30	1700	3400	160	2000	4000	150	2000	4000	100	2000	4000	80
16,9R30	1700	3400	100	2000	4000	120	2000	4000	100	2000	4000	80
480/70R30	1700	3400	90	2000	4000	100	2000	4000	80	2000	4000	80
18,4-30	1700	3400	120	2000	4000	100	2000	4000	80	2000	4000	80
18,4R30	1700	3400	80	2000	4000	100	2000	4000	80	2000	4000	80
16,9-34	1700	3400	150	2000	4000	130	2000	4000	100	2000	4000	80
16,9R34	1700	3400	100	2000	4000	110	2000	4000	90	2000	4000	80
480/70R34	1700	3400	80	2000	4000	90	2000	4000	80	2000	4000	80
18,4-34 8 PR	1700	3400	110	2000	4000	110	2000	4000	110	2000	4000	110
18,4R34	1700	3400	80	2000	4000	90	2000	4000	80	2000	4000	80
520/70R34	2680	5000	120	2640	5000	100	2640	5000	100	2930	5500	80
600/65R34	2520	5000	80	2700	5000	80	2700	5000	80	2960	5500	60
12,4-36	1150	2300	170	1440	2880	170	1730	3460	170	2000	4000	170
13,6-36	1300	2600	160	1615	3230	160	1940	3880	160	2000	4000	140

Note: Loading capacity values are valid for rear wheel tread 1725 mm and are in accordance with axle loading capacity.
At operation on hard surface it is suitable with regard to slipping and galling of tire to raise pressure by 30 kPa.

MAIN TECHNICAL PARAMETERS

CHANGE OF LOAD CAPACITY OF FRONT TIRES %		
Travel speed ($km.h^{-1}$)	**diagonal**	**radial**
8	+ 40	+ 50
20	+ 20	+ 23
30	0	+ 7
40	- 20	0

CHANGE OF LOAD CAPACITY OF REAR TIRES %		
Travel speed ($km.h^{-1}$)	**diagonal**	**radial**
8	+ 40	+ 50
20	+ 20	+ 23
30	0	+ 7
40	- 20	0

PERMITTED COMBINATIONS OF WHEELS FOR TRACTORS			
Front wheels		**Rear wheels**	
Tyre size	equivalent	Tyre size	equivalent
11,2-24	11,2R24	13,6-36	
		16,9-30	16,9R30 480/70R30
12,4-24	12,4R24 360/70R24	18,4 -30	18,4 R30 520/70R30
		16,9-34	16,9R34 480/70R34
		13,6-36	
13,6-24	13,6R24 380/70R24	16,9-34	16,9R34 480/70R34
		18,4-34	18,4R34 520/70R34 600/65R34

MAIN TECHNICAL PARAMETERS

FORCES	Proxima			
Type of engine	**70**	**80**	**90**	**100**
Lift capacity at the end of the lower drawbars of the rear thee-point hitch during the entire lift while using up the maximum pressure with 2 outer cylinders - cylinder 63mm in diameter (kN) - *cylinder 75mm in diameter (kN)	 27 38			
Lift capacity at the end of the lower drawbars of the front three-point hitch during the entire lift while using up the maximum pressure (kN)	 23			
POWER				
Power on output shaft (kW±2%) - at nominal speed engine and shifted speed 1,000 rpm of the output shaft				
New engine having 100 Mh max.	38.5	45.5	52	58
Run-in engine (over 100 Mh	40.5	48	54.5	60.5

MAIN TECHNICAL PARAMETERS

TRACTOR EQUIPPED WITH SYNCHRONIZED TRANSMISSION - SPEED 30 KM.H^{-1}									
Shifted gear	Ground PTO speed	**Tractor travel speed (km.h^{-1}) at rated engine speed and at below stated tire dimensions of rear wheels**							
		14,9 - 28	16,9 - 28	12,4 - 36	16,9 - 30	13,6 - 36	18,4 - 30	16,9 - 34	18,4 - 34
1	293,43	5,59	5,85	6,03	6,07	6,24	6,29	6,51	6,72
2	418,20	7,97	8,34	8,59	8,65	8,90	8,96	9,27	9,58
3	590,96	11,26	11,78	12,13	12,22	12,57	12,66	13,10	13,54
4	935,05	17,81	18,64	19,20	19,34	19,90	20,04	20,73	21,43
5	1344,44	25,61	26,81	27,61	27,81	28,61	28,81	29,81	30,81
1L	293,43	1,42	1,48	1,53	1,54	1,58	1,59	1,65	1,70
2L	418,20	2,02	2,11	2,18	2,19	2,25	2,27	2,35	2,43
3L	590,96	2,85	2,99	3,07	3,10	3,19	3,21	3,32	3,43
4L	935,05	4,51	4,72	4,87	4,90	5,04	5,08	5,25	5,43
5L	1344,44	6,49	6,79	7,00	7,05	7,25	7,30	7,55	7,81
R	-364,92	6,95	7,28	7,49	7,55	7,76	7,82	8,09	8,36
RL	-364,92	1,76	1,84	1,90	1,91	1,97	1,98	2,05	2,12

L - reduction, R – reverse gear

MAIN TECHNICAL PARAMETERS

TRACTOR EQUIPPED WITH SYNCHRONIZED TRANSMISSION - SPEED 40 km.h^{-1}									
Shifted gear	Ground PTO speed	Tractor travel speed (km.h^{-1}) at rated engine speed and at below stated tire dimensions of rear wheels							
		14,9 - 28	16,9 - 28	12,4 - 36	16,9 - 30	13,6 - 36	18,4 - 30	16,9 - 34	18,4 - 34
1	293,43	6,74	7,06	7,27	7,32	7,53	99,08	7,85	8,11
2	418,20	9,61	10,06	10,36	10,43	10,73	69,52	11,18	11,56
3	590,96	13,58	14,21	14,64	14,74	15,17	49,20	15,80	16,33
4	935,05	21,48	22,49	23,16	23,33	24,00	31,09	25,01	25,84
5	1344,44	30,89	32,33	33,30	33,54	34,51	21,63	35,95	37,16
1L	293,43	1,71	1,79	1,84	1,85	1,91	391,04	1,99	2,06
2L	418,20	2,43	2,55	2,62	2,64	2,72	274,37	2,83	2,93
3L	590,96	3,44	3,60	3,71	3,74	3,84	194,16	4,00	4,14
4L	935,05	5,44	5,70	5,87	5,91	6,08	122,71	6,34	6,55
5L	1344,44	7,83	8,19	8,44	8,50	8,74	85,35	9,11	9,42
R	-364,92	8,38	8,78	9,04	9,10	9,37	9,43	9,76	10,09
RL	-364,92	2,12	2,22	2,29	2,31	2,37	2,39	2,47	2,56

L - reduction, R – reverse gear

MAIN TECHNICAL PARAMETERS

TRACTOR EQUIPPED WITH SYNCHRONIZED TRANSMISSION AND REVERSOR - SPEED 30 km.h^{-1}									
Shifted gear	Ground PTO speed	Tractor travel speed (km.h^{-1}) at rated engine speed and at below stated tire dimensions of rear wheels							
		14,9 - 28	16,9 - 28	12,4 - 36	16,9 - 30	13,6 - 36	18,4 - 30	16,9 - 34	18,4 - 34
1	228,08	4,34	4,55	4,68	4,72	4,85	4,89	5,06	5,23
2	293,43	5,59	5,85	6,03	6,07	6,24	6,29	6,51	6,72
3	418,20	7,97	8,34	8,59	8,65	8,90	8,96	9,27	9,58
4	590,96	11,26	11,78	12,13	12,22	12,57	12,66	13,10	13,54
5	935,05	17,81	18,64	19,20	19,34	19,90	20,04	20,73	21,43
6	1344,44	25,61	26,81	27,61	27,81	28,61	28,81	29,81	30,81
1L	228,08	1,10	1,15	1,19	1,20	1,23	1,24	1,28	1,32
2L	293,43	1,42	1,48	1,53	1,54	1,58	1,59	1,65	1,70
3L	418,20	2,02	2,11	2,18	2,19	2,25	2,27	2,35	2,43
4L	590,96	2,85	2,99	3,07	3,10	3,19	3,21	3,32	3,43
5L	935,05	4,51	4,72	4,87	4,90	5,04	5,08	5,25	5,43
6L	1344,44	6,49	6,79	7,00	7,05	7,25	7,30	7,55	7,81
1R	-249,21	4,75	4,97	5,12	5,15	5,30	5,34	5,53	5,71
2R	-320,63	6,11	6,39	6,58	6,63	6,82	6,87	7,11	7,35
3R	-456,96	8,70	9,11	9,38	9,45	9,72	9,79	10,13	10,47
4R	-645,74	12,30	12,88	13,26	13,36	13,74	13,84	14,32	14,80
5R	-1021,71	19,46	20,37	20,98	21,13	21,74	21,89	22,65	23,41
6R	-1469,05	27,98	29,29	30,17	30,38	31,26	31,48	32,57	33,66
1LR	-249,21	1,20	1,26	1,30	1,31	1,34	1,35	1,40	1,45
2LR	-320,63	1,55	1,62	1,67	1,68	1,73	1,74	1,80	1,86
3LR	-456,96	2,21	2,31	2,38	2,39	2,46	2,48	2,57	2,65
4LR	-645,74	3,12	3,26	3,36	3,38	3,48	3,51	3,63	3,75
5LR	-1021,71	4,93	5,16	5,32	5,35	5,51	5,55	5,74	5,93
6LR	-1469,05	7,09	7,42	7,64	7,70	7,92	7,98	8,25	8,53

L - reduction, R – reverse gear

MAIN TECHNICAL PARAMETERS

TRACTOR EQUIPPED WITH SYNCHRONIZED TRANSMISSION AND REVERSOR - SPEED 40 km.h^{-1}									
Shifted gear	Ground PTO speed	Tractor travel speed (km.h^{-1}) at rated engine speed and at below stated tire dimensions of rear wheels							
		14,9 - 28	16,9 - 28	12,4 - 36	16,9 - 30	13,6 - 36	18,4 - 30	16,9 - 34	18,4 - 34
1	228,08	5,24	5,49	5,65	5,69	5,85	5,89	6,10	6,30
2	293,43	6,74	7,06	7,27	7,32	7,53	7,58	7,85	8,11
3	418,20	9,61	10,06	10,36	10,43	10,73	10,81	11,18	11,56
4	590,96	13,58	14,21	14,64	14,74	15,17	15,27	15,80	16,33
5	935,05	21,48	22,49	23,16	23,33	24,00	24,17	25,01	25,84
6	1344,44	30,89	32,33	33,30	33,54	34,51	34,75	35,95	37,16
1L	228,08	1,33	1,39	1,43	1,44	1,48	1,49	1,55	1,60
2L	293,43	1,71	1,79	1,84	1,85	1,91	1,92	1,99	2,06
3L	418,20	2,43	2,55	2,62	2,64	2,72	2,74	2,83	2,93
4L	590,96	3,44	3,60	3,71	3,74	3,84	3,87	4,00	4,14
5L	935,05	5,44	5,70	5,87	5,91	6,08	6,12	6,34	6,55
6L	1344,44	7,83	8,19	8,44	8,50	8,74	8,80	9,11	9,42
1R	-249,21	5,73	5,99	6,17	6,22	6,40	6,44	6,66	6,89
2R	-320,63	7,37	7,71	7,94	8,00	8,23	8,29	8,57	8,86
3R	-456,96	10,50	10,99	11,32	11,40	11,73	11,81	12,22	12,63
4R	-645,74	14,83	15,53	15,99	16,11	16,57	16,69	17,27	17,85
5R	-1021,71	23,47	24,57	25,31	25,49	26,22	26,41	27,32	28,24
6R	-1469,05	33,75	35,33	36,39	36,65	37,70	37,97	39,29	40,60
1LR	-249,21	1,45	1,52	1,56	1,58	1,62	1,63	1,69	1,75
2LR	-320,63	1,87	1,95	2,01	2,03	2,09	2,10	2,17	2,25
3LR	-456,96	2,66	2,78	2,87	2,89	2,97	2,99	3,10	3,20
4LR	-645,74	3,76	3,94	4,05	4,08	4,20	4,23	4,38	4,52
5LR	-1021,71	5,95	6,23	6,41	6,46	6,64	6,69	6,92	7,16
6LR	-1469,05	8,55	8,95	9,22	9,29	9,55	9,62	9,95	10,29

L - reduction, R – reverse gear

MAIN TECHNICAL PARAMETERS

TRACTOR EQUIPPED WITH REDUCTOR FOR CREEPING GEARS - SPEED 30 km.h^{-1}									
Shifted gear	Ground PTO speed	Tractor travel speed (km.h^{-1}) at rated engine speed and at below stated tire dimensions of rear wheels							
		14,9 - 28	16,9 - 28	12,4 - 36	16,9 - 30	13,6 - 36	18,4 - 30	16,9 - 34	18,4 - 34
1	293.43	5.59	5.85	6.03	6.07	6.24	6.29	6.51	6.72
2	418,20	7,97	8,34	8,59	8,65	8,90	8,96	9,27	9,58
3	590,96	11,26	11,78	12,13	12,22	12,57	12,66	13,10	13,54
4	935,05	17,81	18,64	19,20	19,34	19,90	20,04	20,73	21,43
5	1344,44	25,61	26,81	27,61	27,81	28,61	28,81	29,81	30,81
1L	293.43	1.42	1.48	1.53	1.54	1.58	1.59	1.65	1.70
2L	418,20	2,02	2,11	2,18	2,19	2,25	2,27	2,35	2,43
3L	590,96	2,85	2,99	3,07	3,10	3,19	3,21	3,32	3,43
4L	935,05	4,51	4,72	4,87	4,90	5,04	5,08	5,25	5,43
5L	1344,44	6,49	6,79	7,00	7,05	7,25	7,30	7,55	7,81
1S	31.64	0.60	0.63	0.65	0.65	0.67	0.68	0.70	0.72
2S	45,09	0,86	0,90	0,93	0,93	0,96	0,97	1,00	1,03
3S	63,72	1,21	1,27	1,31	1,32	1,36	1,37	1,41	1,46
4S	100,82	1,92	2,01	2,07	2,09	2,15	2,16	2,24	2,31
5S	144,96	2,76	2,89	2,98	3,00	3,08	3,11	3,21	3,32
1LS	31.64	0.15	0.16	0.16	0.17	0.17	0.17	0.18	0.18
2LS	45,09	0,22	0,23	0,23	0,24	0,24	0,24	0,25	0,26
3LS	63,72	0,31	0,32	0,33	0,33	0,34	0,35	0,36	0,37
4LS	100,82	0,49	0,51	0,52	0,53	0,54	0,55	0,57	0,59
5LS	144,96	0,70	0,73	0,75	0,76	0,78	0,79	0,81	0,84
R	-364.92	6.95	7.28	7.49	7.55	7.76	7.82	8.09	8.36
RL	-364,92	1,76	1,84	1,90	1,91	1,97	1,98	2,05	2,12
RS	-39,35	0,75	0,78	0,81	0,81	0,84	0,84	0,87	0,90
RLS	-39,35	0,19	0,20	0,20	0,21	0,21	0,21	0,22	0,23

L - reduction, R –reverse gear, S – creeping gears

MAIN TECHNICAL PARAMETERS

TRACTOR EQUIPPED WITH REDUCTOR FOR CREEPING GEARS - SPEED 40 km.h^{-1}									
Shifted gear	Ground PTO speed	Tractor travel speed (km.h^{-1}) at rated engine speed and at below stated tire dimensions of rear wheels							
		14,9 - 28	16,9 - 28	12,4 - 36	16,9 - 30	13,6 - 36	18,4 - 30	16,9 - 34	18,4 - 34
1	293,43	6,74	7,06	7,27	7,32	7,53	7,58	7,85	8,11
2	418,20	9,61	10,06	10,36	10,43	10,73	10,81	11,18	11,56
3	590,96	13,58	14,21	14,64	14,74	15,17	15,27	15,80	16,33
4	935,05	21,48	22,49	23,16	23,33	24,00	24,17	25,01	25,84
5	1344,44	30,89	32,33	33,30	33,54	34,51	34,75	35,95	37,16
1L	293,43	1,71	1,79	1,84	1,85	1,91	1,92	1,99	2,06
2L	418,20	2,43	2,55	2,62	2,64	2,72	2,74	2,83	2,93
3L	590,96	3,44	3,60	3,71	3,74	3,84	3,87	4,00	4,14
4L	935,05	5,44	5,70	5,87	5,91	6,08	6,12	6,34	6,55
5L	1344,44	7,83	8,19	8,44	8,50	8,74	8,80	9,11	9,42
1S	31,64	0,73	0,76	0,78	0,79	0,81	0,82	0,85	0,87
2S	45,09	1,04	1,08	1,12	1,12	1,16	1,17	1,21	1,25
3S	63,72	1,46	1,53	1,58	1,59	1,64	1,65	1,70	1,76
4S	100,82	2,32	2,42	2,50	2,52	2,59	2,61	2,70	2,79
5S	144,96	3,33	3,49	3,59	3,62	3,72	3,75	3,88	4,01
1LS	31,64	0,18	0,19	0,20	0,20	0,21	0,21	0,21	0,22
2LS	45,09	0,26	0,27	0,28	0,29	0,29	0,30	0,31	0,32
3LS	63,72	0,37	0,39	0,40	0,40	0,41	0,42	0,43	0,45
4LS	100,82	0,59	0,61	0,63	0,64	0,66	0,66	0,68	0,71
5LS	144,96	0,84	0,88	0,91	0,92	0,94	0,95	0,98	1,02
R	-364,92	8,38	8,78	9,04	9,10	9,37	9,43	9,76	10,09
RL	-364,92	2,12	2,22	2,29	2,31	2,37	2,39	2,47	2,56
RS	-39,35	0,90	0,95	0,97	0,98	1,01	1,02	1,05	1,09
RLS	-39,35	0,23	0,24	0,25	0,25	0,26	0,26	0,27	0,28

L - reduction, R –reverse gear, S – creeping gears

MAIN TECHNICAL PARAMETERS

Standard tractors

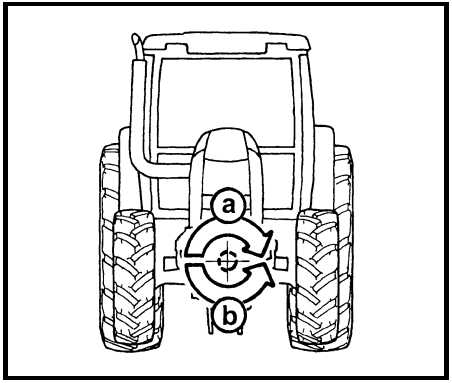
INDEPENDENT REAR PTO SHAFT ROTATION		
Designation	**PTO shaft speed /engine speed**	**PTO shaft speed /engine speed**
540	540/1994	596/2200
540 E	540/1519	782/2200
1 000	1000/2050	1073/2200

Tractors equipped with reversation or creeper.

REAR INDEPENDENT PTO SHAFT ROTATION			
mark	**rotation**	**shaft rotation/engine rotation**	**shaft rotation/engine rotation**
540/1000	**540**	540 / 1987	598 / 2200
	1000	1000 / 1950	1128 / 2200
540/540E	**540**	540 / 2005	592 / 2200
	540E	540 / 1584	750 / 2200

MAIN TECHNICAL PARAMETERS

FRONT PTO SHAFT		
Sense of rotation	**PTO shaft speed/engine speed**	**PTO shaft speed/engine speed**
right	1000/1818	1210/2200
∗left	1000/1870	1176/2200



MAIN TECHNICAL PARAMETERS

CONTOUR AND TREAD TURNING DIAMETERS TRACTORS WITHOUT FRONT DRIVE							
Wheel tread	front	1515 mm	Tire size	front	9,00-16	Left	Right
	rear	1500 mm		rear	16,9R34		
Tread diameter (mm)						8090 mm	8260 mm
	with inner rear wheel braked					7200 mm	7290 mm
Contour diameter (mm)						8710 mm	8920 mm
	with inner rear wheel braked					7820 mm	7950 mm

CONTOUR AND TREAD TURNING DIAMETERS TRACTORS WITH FRONT DRIVE							
Wheel tread	front	1585 mm	Tire size	front	13,6R24	Left	Right
	rear	1500 mm		rear	16,9R34		
Tread diameter (mm)	without engaged front driving axle					11150 mm	11100 mm
	without engaged front driving axle with inner rear wheel braked					9360 mm	9110 mm
	with engaged front driving axle					11970 mm	11930 mm
	with engaged front driving axle with inner rear wheel braked					8025 mm	8025 mm
Contour diameter (mm)	without engaged front driving axle					11690 mm	11600 mm
	without engaged front driving axle with inner rear wheel braked					9900 mm	9620 mm
	with engaged front driving axle					12510 mm	12430 mm
	with engaged front driving axle with inner rear wheel braked					8565 mm	8525 mm

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